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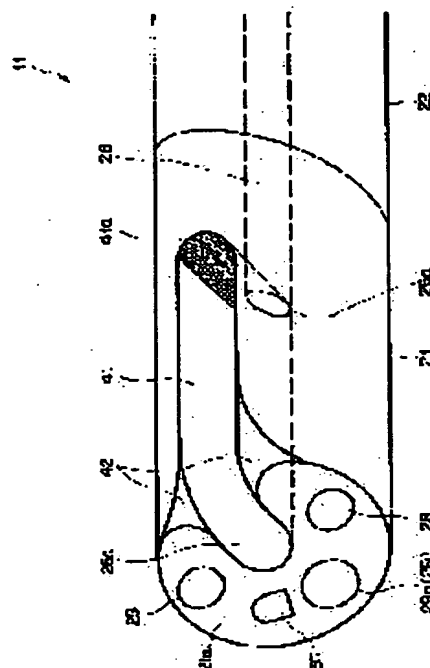
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(54) RETAINING AND FIXING METHOD OF ENDOSCOPE, TREATMENT TOOL, OR INDWELLING TUBE AND ENDOSCOPE DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To enable a treatment tool or a indwelling tube with large tip end to be simply retained detachable on the tip end part of an endoscope inserting part.

SOLUTION: An endoscope 2 is set in an endoscope inserting part 11 which has a channel 26 with opening on the tip end part 21 for treatment tool inserting. The endoscope 2 is formed of a groove part (recess part) 41, which is to set the treating tool or the indwelling tube along the outer periphery axis direction and to retain the treating tool or the indwelling tube on the tip end part 21 of the endoscope inserting part 11, toward the base end side from the tip end opening part 26a of the treating tool inserting channel 26 on the outer periphery of the tip end part 21 of the endoscope inserting part 11.



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## CLAIMS

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### [Claim(s)]

[Claim 1] The endoscope characterized by forming the crevice for making a treatment implement or a detention tube meet the periphery shaft orientations of the endoscope insertion section, and holding the point of said treatment implement or a detention tube to the point of said endoscope insertion section in the point side of said endoscope insertion section.

[Claim 2] It is arranged in endoscope insertion circles and has the channel for treatment implement insertion which carries out opening to the point of this endoscope insertion section. The crevice for making a treatment implement or a detention tube meet the periphery shaft orientations of the endoscope insertion section, and holding the point of said treatment implement or a detention tube to the point of said endoscope insertion section The endoscope characterized by forming in the point periphery of said endoscope insertion section toward a end face side from tip opening of said channel for treatment implement insertion.

[Claim 3] Make the periphery shaft orientations of said endoscope insertion section meet, and the point of said treatment implement or said detention tube is arranged to said crevice. Insert said holder in said channel for treatment implement insertion, and it is made to project into said crevice from tip opening of this channel for treatment implement insertion. The point of said treatment implement or said detention tube is held with the holder made to project into this crevice. Said holder is made to draw in said channel for treatment implement insertion, where the point of these treatment implement or a detention tube is held. The treatment implement according to claim 2 characterized by making said crevice carry out maintenance immobilization of the point of said treatment implement or said detention tube, or the maintenance fixed approach of a detention tube.

[Claim 4] The channel for treatment implement insertion which it is arranged in the insertion circles of an endoscope and carries out opening to the point of this insertion section, The treatment implement for dealing with the detention tube or inside-of-the-body tissue which detains into a coelome is made to meet the appearance section of the insertion section of said endoscope. The slot which carries out opening of said channel for treatment implement insertion to the appearance section of said insertion section toward a end face side from opening of the point of said channel for treatment implement insertion in order to hold the point of said detention tube or a treatment implement to the point of said endoscope insertion section, The holder which is made to project from said slot through said channel for treatment implement insertion, and holds the perimeter of the outer-diameter section of said detention tube or a treatment implement, Endoscope equipment characterized by drawing this holder in said channel for treatment implement insertion, and providing an actuation means of said detention tube or a treatment implement to contain near the point to said Mizouchi at least.

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[Translation done.]

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## DETAILED DESCRIPTION

## [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the maintenance fixed approach and endoscope equipment of an endoscope, a treatment implement, or a detention tube.

[0002]

[Description of the Prior Art] Generally, the endoscope used for medical application etc. can conduct the monor surgery in a living body coelome, inspection of a body tissue, etc. The above-mentioned endoscope leads a treatment implement and a detention tube into a coelome at the insertion section through the channel for treatment implement insertion by which insertion arrangement was carried out, and it deals with a body tissue or it is detaining the detention tube into a coelome.

[0003] When detaining the conventional, for example, detention, tube in a coelome, there is an approach as shown in drawing 17 or drawing 18. A way person inserts the insertion section 101 of an endoscope 100 in taking orally first, and makes the insertion section point 102 reach to the purpose part, as shown in drawing 17 (a). Next, the channel for treatment implement insertion which does not insert and illustrate the direct detention tube 104 is made to insert in the treatment implement insertion opening 103 of this endoscope 100, and the detention tube 104 is detained in the purpose part. And as shown in drawing 17 R> 7 (b), extraction of the endoscope 100 is carried out. Next, a detention tube is moved to a nose side using the guidewire and auxiliary implement which are not illustrated as shown in drawing 17 (c), and detention is completed.

[0004] On the other hand, a way person inserts the insertion section 101 of an endoscope 100 in pernasality first, and makes the insertion section point 102 reach to the purpose part, as shown in drawing 18 (a). Next, the channel for treatment implement insertion which does not insert and illustrate a guidewire 105 is made to insert in the treatment implement insertion opening 103 of this endoscope 100, and a guidewire 105 is detained in the purpose part. And as shown in drawing 18 (b), extraction of the endoscope 100 is carried out. Next, as shown in drawing 18 (c), this detained guidewire 105 is made to meet, the detention tube 104 is detained, extraction of the guidewire 105 is carried out, and detention is completed.

[0005] Such an endoscope inserts a guidewire into the channel for treatment implement insertion, and inserts pro SUTESU for endoscopes in a guide for the guidewire as indicated by JP,63-24883,U, and what can detain endoscope pro SUTESU in the purpose part is proposed. In addition, under radiology, blindly, \*\*\* insertion is carried out and a tube is sometimes detained [ taking orally or ], not using an endoscope but applying SEDESHON about a detention tube.

[0006] Moreover, such an endoscope attaches an external channel in the insertion section as indicated by JP,60-34242,U and JP,5-21901,U, and what can be inserted into a coelome is proposed in the treatment implement etc. through this external channel.

[0007] The endoscope indicated by the former (JP,60-34242,U) formed the through tube which engages a wire with this insertion section point, and has prepared the wire arranged so that the both ends turned up through the inside of this through tube may be on a hand side. And the point of the tube along which a treatment implement passes at the end of the above-mentioned wire is opened for free passage, and the other end of a wire is drawn near, and the point of a tube is led to the above-mentioned through tube, and it fits into it, and has come to be able to carry out external [ of the tube ] to the point of an endoscope.

[0008] The endoscope indicated by the latter (JP,5-21901,U) prepares the sheet-like installation section which has an adhesive layer at the tip of a tube, and has come to be able to carry out external [ of the tube ] to an insertion section point on the other hand so that a tube can detach and attach in the location and the direction of arbitration easily to this insertion section point.

[0009]

[Problem(s) to be Solved by the Invention] By the way, narrow diameter-ization of the insertion section is attained for the insertion operability into a coelome etc., a patient's pain mitigation, etc., and an endoscope is in the inclination for the channel for treatment implement insertion which inserts in a detention tube and a treatment implement according to it to also become thin in recent years. For this reason, the fault that become, or are hard to insert in a treatment implement with big points, such as a cup, and the detention tube of size becomes being hard to use it conventionally has arisen.

[0010] Moreover, when inserting a detention tube through the channel for treatment implement insertion, the die length of about [ that the size of the diameter of inside and outside of a detention tube is restricted ] and a detention tube needed to be lengthened superfluously (the die length beyond twice of the endoscope insertion section). Moreover, when a guidewire was detained and a detention tube was detained into a coelome through this guidewire, extraction of the endoscope needed to be carried out to the outside of the body from the inside of a coelome, and the technique was complicated and it had taken time and effort. In addition, even if it decided not to perform the above-mentioned detention under endoscope observation at this time, the technique was complicated and it had taken time and effort.

[0011] On the other hand, as for the endoscope given in above-mentioned JP,60-34242,U or JP,5-21901,U, it was not complicated to have equipped the insertion section with an external channel, and although external was easily possible, when unnecessary, the easy thing to remove was not completed. Moreover, even if it was able to remove the external channel from the insertion section easily, there was a case where body tissues, such as the adhesion section in a coelome, remained in the periphery of an insertion section point.

[0012] Moreover, of course, the endoscope given in these JP,60-34242,U or JP,5-21901,U was not able to detain a channel (tube) in the purpose part. Moreover, there was a problem that the outer-diameter part insertion section which attached not only the size of a treatment implement but the external channel will become thick. In addition, since a detention tube could not be immediately detained since SEDESHON could not be used for a critical patient when an endoscope did not tend to be used but it was going to detain the detention tube, or the detention tube was blindly put in in the coelome, skill was required, time amount was taken and there were problems, like there is the need of using an X-ray.

[0013] This invention is made in view of these situations, and aims at providing the point of the endoscope insertion section with the maintenance fixed approach and endoscope equipment of the endoscope which can be held free [ attachment and detachment ], a treatment implement, or a detention tube for a treatment implement with a big tip, or a detention tube simple.

[0014]

[Means for Solving the Problem] In order to attain said purpose, the endoscope of claim 1 of this invention makes a treatment implement or a detention tube meet the periphery shaft orientations of the endoscope insertion section, and is characterized by forming the crevice for holding the point of said treatment implement or a detention tube to the point of said endoscope insertion section in the point side of said endoscope insertion section. Moreover, the endoscope of claim 2 of this invention is arranged in endoscope insertion circles, and it has the channel for treatment implement insertion which carries out opening to the point of this endoscope insertion section. The crevice for making a treatment implement or a detention tube meet the periphery shaft orientations of the endoscope insertion section, and holding the point of said treatment implement or a detention tube to the point of said endoscope insertion section It is characterized by forming in the point periphery of said endoscope insertion section toward a end face side from tip opening of said channel for treatment implement insertion. Moreover, the treatment implement of claim 3 of this invention or the maintenance fixed approach of a detention tube In an endoscope according to claim 2, make the periphery shaft orientations of said endoscope insertion section meet, and the point of said treatment implement or said detention tube is arranged to said crevice. Insert said holder in said channel for treatment implement insertion, and it is made to project into said crevice from tip opening of this channel for treatment implement insertion. The point of said treatment implement or said detention tube is held with the holder made to project into this crevice. Said holder is made to draw in said channel for treatment implement insertion, where the point of these treatment implement or a detention tube is held, and it is characterized by making said crevice carry out maintenance immobilization of the point of said treatment implement or said detention tube. Moreover, the channel for treatment implement insertion which the endoscope equipment of claim 4 of this invention is arranged in the insertion circles of an endoscope, and carries out opening to the point of this insertion section, The treatment implement for dealing with the detention tube or inside-of-the-body tissue which detains into a coelome is made to meet the appearance section of the insertion section of said endoscope. The slot which carries out opening of said channel for treatment implement insertion to the appearance section of said insertion section toward a end face side from opening of the point of said channel for treatment implement insertion in order to hold the point of said detention tube or a treatment implement to the point of said endoscope insertion section, The holder which is made to project from said slot through said channel for treatment implement insertion, and holds the perimeter of the outer-diameter section of said detention tube or a treatment implement, It is characterized by drawing this holder in said channel for treatment implement insertion, and providing an actuation means of said detention tube or a treatment implement to contain near the point to said Mizouchi at least. Thereby, maintenance of a treatment implement with a big tip or a detention tube is enabled free [ attachment and detachment ] simple at the point of the endoscope insertion section.

[0015]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to a drawing. Drawing 1 thru/or drawing 8 start the gestalt of operation of the 1st of this invention. (Gestalt of the 1st operation) The outline block diagram of the endoscope equipment with which drawing 1 was equipped with the gestalt of operation of the 1st of this invention, Drawing 2 is an explanatory view at the time of attaching a stop implement in the endoscope control unit of drawing 1. The explanatory view in which drawing 2 (a) shows near the treatment implement insertion opening of an endoscope control unit, the external view in which drawing 2 (b) shows the stop implement of this drawing (a), It is an explanatory view at the time of the explanatory view in which drawing 3 R> 3 shows the point of the endoscope insertion section of drawing 1, and drawing 4 holding the detention tube to the point of the endoscope insertion section of drawing 3. The explanatory view in the middle of the explanatory view at the time of drawing 4 (a) making a holder project and drawing 4 (b) hooking the point of a detention tube by the annular section of a holder from the condition of this drawing (a), and holding, Drawing 4 (c) holds the point of a detention tube by the annular section of a holder from the condition of this drawing (b). The explanatory view at the time of making a holder draw in the channel for treatment implement insertion and drawing 5 are the explanatory views explaining an operation of the gestalt of operation of the 1st of this invention. Drawing 5 (a) the endoscope insertion section with a detention tube The explanatory view at the time of inserting into a coelome in taking orally and drawing 5 (b) remove a detention tube from the condition of this drawing (a). The explanatory view at the time of the explanatory view in the middle of detaining in the purpose part and drawing 5 R> 5 (c) carrying out extraction of the endoscope insertion section out of a coelome from the condition of this drawing (b), The explanatory view in which drawing 6 is the explanatory view showing the modification of the stop implement of drawing 2, and drawing 6 (a) shows near the treatment implement insertion opening of an endoscope control unit, The external view in which drawing 6 (b) shows the stop implement of this drawing (a), and drawing 7 are the explanatory views showing other modifications of the stop implement of drawing 2. The explanatory view in which drawing 7 (a) shows near the treatment implement insertion opening of an endoscope control unit, the external view in which drawing 7 (b) shows the stop implement of this drawing (a), and drawing 8 are explanatory views in which it is shown near the treatment implement insertion opening of the endoscope control unit at the time of using guide yarn instead of the holder of drawing 2.

[0016] The endoscope equipment 1 equipped with the gestalt of operation of the 1st of this invention as shown in drawing 1 mainly consists of an electronic endoscope (only endoscope) 2 which has the image pick-up means which is not illustrated as image pick-up equipment, a video processor 3 which performs signal processing to the picture signal acquired with this endoscope 2, and a monitor 4 which displays an endoscope image in response to the video signal outputted from this video processor 3. In addition, said video processor 3 and said monitor 4 are connected with an interconnection cable 5.

[0017] Said endoscope 2 carries out the internal organs of the image pick-up means which is not illustrated to a point, extends

from the insertion section 11 which has flexibility by the \*\* length who can insert into the lumen for observation, the control unit 13 which serves as the attaching part which broke into the end face side of this insertion section 11, and was connected through the stop section 12, and the flank of this control unit 13, and consists of flexible universal cords 15 which have a connector area 14 at the edge.

[0018] Said insertion sections 11 are formed successively from a tip at the end face side of the hard point 21 and this point 21, are formed successively at the end face side of the bend 22 which can curve freely, and this bend 22, and consist of flexible flexible tube parts 23. Said control unit 13 has prepared right-and-left curve operating-knob 24a which incurvates said bend 22 to a longitudinal direction as well as vertical curve operating-knob 24a which incurvates the bend 22 of said insertion section 11 in the vertical direction by remote operation, and can be incurvated also in the vertical and horizontal direction of middle (the twist direction) by performing these vertical operating-knob 24a and right-and-left operating-knob 24b to coincidence.

[0019] Moreover, the treatment implement insertion opening 25 which inserts a treatment implement with small points, such as snare forceps later mentioned near [ this ] the front end, is formed, and said control unit 13 can project the tip side of a treatment implement from opening of the point 21 of said insertion section 11 through the channel 26 for treatment implement insertion by which insertion arrangement was carried out in that interior. Moreover, said control unit 13 has prepared actuation switch 27c which operates the function of the video processors 3, such as supplied-air water supply carbon button 27a which operates a supplied air and water supply actuation by remote control, suction carbon button 27b which operates suction actuation by remote control and an image freeze function, a release carbon button, and the modulated light approach switch carbon button, by remote control.

[0020] Said endoscope 2 is connected free [ said video processor 3 and attachment and detachment ] through the connector area 14 of said universal cord 15. In addition, said video processor 3 possesses the light equipment and supplied-air water supply equipment which are not illustrated. Moreover, said video processor 3 can connect peripheral devices, such as the VTR deck which is not illustrated, a video printer, and a videodisk.

[0021] The illumination light is supplied from the light equipment which is not illustrated because said endoscope 2 connects the connector area 14 of said universal cord 15 to said video processor 3 free [ attachment and detachment ]. The illumination light supplied from said light equipment illuminates a photographic subject from two illumination-light study systems 28 via the light guide which is not illustrated in an endoscope 2 (refer to drawing 3 ).

[0022] The illuminated photographic subject image is incorporated from the object optical system 29 built in the point 21 of said endoscope insertion section 11, and is picturized with said image pick-up means. Signal processing of the video processor 3 is carried out by the digital disposal circuit which does not illustrate the image pick-up signal from the image pick-up means of said endoscope 2, it is transmitted to a monitor 4 through said interconnection cable 5, and displays an endoscope image.

[0023] Moreover, the air supplied from the supplied-air water supply equipment which the video processor 3 does not illustrate, and water can be poured now towards the tip lens 29a external surface of this aforementioned object optical system 29 via the supplied-air water pipe way which is not illustrated in an endoscope 2 at the time of the need from the supplied-air water supply nozzle 30.

[0024] As shown in drawing 2 (a), said endoscope 2 can attach the stop implement 32 for stopping the treatment implement or hand side of the detention tube 31 to this control unit 13. With this stop implement 32, the said treatment implement or hand side of said detention tube 31 is stopped, and it becomes possible to make these treatment implement or the detention tube 31 meet the periphery section of the endoscope insertion section. In addition, the detention tube 31 is indicated in drawing 2 (a).

[0025] As shown in drawing 2 (b), said stop implement 32 is formed by India rubbers and elastic elastomers, such as silicone, has stop section 32a which stops said detention tube 31, and is constituted. In addition, the holder 33 for holding the point of said treatment implement or the detention tube 31 is inserted in said treatment implement insertion opening 25. The holders 33 used with the gestalt of this operation are snare forceps which have annular section 33a formed at a tip with a wire (refer to drawing 4 ). By annular section 33a of this holder 33, near the point of said treatment implement or the detention tube 31 is hooked, and is held so that it may mention later. In addition, the detention tube 31 used is formed by elasticity tubes, such as silicone and PTFE (polytetrafluoroethylene). Said detention tube 31 can insert in a treatment implement, and the treatment of the purpose part seems moreover, to make it.

[0026] Moreover, the thing of a configuration as shown in drawing 6 is sufficient as a stop implement. As shown in drawing 6 (a), said endoscope 2 can attach the stop implement 34 for stopping the treatment implement or hand side of the detention tube 31 to this control unit 13. Said stop implement 34 is formed by India rubbers and elastic elastomers, such as silicone. As shown in drawing 6 (b), said stop implement 34 has stop section 34a which stops the detention tube 31. Moreover, said stop implement 34 has adhesion section 34b in which adhesion immobilization on a periphery is possible in the endoscope control unit 13. The durability of adhesion seems in addition, to be easy to remove the adhesion of this adhesion section 34b, and for a control unit 13 side to all have adhesion moreover.

[0027] Moreover, the thing of a configuration as shown in drawing 7 is sufficient as a stop implement. As shown in drawing 7 (a), the hand side of the detention tube 31 provides the stop implement 36 which can be attached in semicircle-like projection 35a prepared in the periphery of the endoscope control unit 13 free [ attachment and detachment ]. Moreover, the stop implement 36 which can also attach the hand side of the holder 33 inserted in said treatment implement insertion opening 25 free [ attachment and detachment ] in said semicircle-like projection 35a is formed. As shown in drawing 7 (b), said stop implement 36 is formed by India rubbers and elastic elastomers, such as silicone. Said stop implement 36 has fitting section 35b which fits into attachment section 36a attached in said treatment implement, or the detention tube 31 and said holder 33, and said semicircle-like projection 35a free [ attachment and detachment ], and is constituted. Thereby, it becomes easy to operate it, without said treatment implement or said not only detention tube 31 but the hand side of said holder 33 loitering.

[0028] An endoscope 2 consists of gestalten of this operation so that the crevice for holding the point of the detention tube 31 made to meet the periphery shaft orientations of the endoscope insertion section 11 as mentioned above may be formed in point 21 periphery of said endoscope insertion section 11.

[0029] Said endoscope 2 is having the slot 41 formed in point 21 periphery of this endoscope insertion section 11 as a crevice for carrying out maintenance immobilization of the point of the detention tube 31 toward a end face side from tip opening 26a of said channel 26 for treatment implement insertion, as shown in drawing 3 . And opening of the tip opening 26a of said channel 26

for treatment implement insertion is carried out to end face side-attachment-wall side 41a of said slot 41. In addition, said slot 41 forms in point end-face 21a of said endoscope insertion section 11 the chamfer 42 which the point of said detention tube 31 can fixed hold on point 21 periphery of said endoscope insertion section 11.

[0030] As shown in drawing 4 (a), \*\*\*\* is free for said holder 33 to tip opening 26a of said channel 26 for treatment implement insertion out of said slot 41. Maintenance immobilization of the point of said detention tube 31 can be carried out in said slot 41 by making said holder 33 draw in said channel 26 for treatment implement insertion, as the point of said detention tube 31 is hooked and held by annular section 33a of the holder 33 made to project into said slot 41 by this as shown in drawing 4 (b) and it is further shown in drawing 4 (c) from this condition. in addition, this time — the physical relationship of point end-face 21a of the endoscope insertion section 11, and tip end-face 31a of said detention tube 31 — this field — or the tip end-face 31a of said detention tube 31 is dented from point end-face 21a of the endoscope insertion section 11.

[0031] Thus, an operation of the gestalt of this constituted operation is explained using drawing 5 with reference to drawing 4. A way person makes a holder 33 insert in the channel 26 for treatment implement insertion from the processing implement insertion opening 20 while he stops the detention tube 31 with the stop implement 32 and makes this detention tube 31 meet the periphery of the insertion section 11 as drawing 2 explained.

[0032] And if a way person makes a holder 33 project into a slot 41 from opening of the channel 26 for treatment implement insertion as drawing 4 explained, the point of the detention tube 31 is hooked and held by annular section 33a of this holder 33 made to project and it is made to draw in the channel 26 for treatment implement insertion, the point of the detention tube 31 will become possible [ carrying out maintenance immobilization in a slot 41 ]. This enables it to hold the point of the detention tube 31 to the point 21 of the endoscope insertion section 11.

[0033] In this condition, as shown in drawing 5 (a), with the detention tube 31, a way person inserts the endoscope insertion section 11 into a coelome in taking orally, and inserts it to the purpose part. If the endoscope insertion section 11 is inserted to the purpose part with the detention tube 31, a way person will loosen by the approach contrary to having mentioned above maintenance of the point of the detention tube 31, as shown in drawing 5 (b), he will remove the detention tube 31 from the point 21 of the insertion section 11, and will detain the detention tube 31 in the purpose part. And as shown in drawing 5 (c), extraction of the endoscope insertion section 11 is carried out out of a coelome. Next, although not illustrated, as drawing 17 and drawing 18 explained, it moves to a nose side using the guidewire which does not illustrate the detention tube 31 which has come out of opening, or an auxiliary implement, and detention is completed.

[0034] Consequently, the endoscope 1 of the gestalt of this operation acquires the effectiveness indicated below.

- It is the endoscope which has the narrow diameter insertion section 11, and even if the bore of the channel 26 for treatment implement insertion is a narrow diameter, detention of the detention tube 31 is possible. A patient's pain makes it mitigate by this. Therefore, SEDESHON also becomes unnecessary and can detain the detention tube 31 also in after the operation immediately by ICU. By it, a patient's health condition becomes fitness early and the ICU length of stay also becomes short.
- Since the need for detention of the blind detention tube 31 is lost, a way person's special mastery also becomes unnecessary. By this, detention can be done for insurance simple. Since fluoroscopy by the X-ray also becomes unnecessary and unnecessary contamination is lost, it is good also for a patient.
- Since the detention tube 31 is not directly inserted in the channel 26 for treatment implement insertion or the detention tube 31 is not detained through a guidewire, the die length of the detention tube 31 is short, and ends.
- Since the detention tube 31 is stopped with the stop implement, the detention tube 31 does not dangle but it is easy to operate it by the hand side.

[0035] In addition, as shown in drawing 8 instead of said holder 33, it is good also as a configuration using the guide yarn of elasticity. As shown in drawing 8, insert the guide yarn 51 of elasticity, such as a nylon gut, from said treatment implement insertion opening 25 instead of said holder 33, and it is made to extend from said slot 41 via said channel 26 for treatment implement insertion, and leads to the hand side of this detention tube 31 via a lumen from the tip of said detention tube 31. And the both ends of guide yarn 51 are stopped with clip equipment 52 near [ treatment implement insertion opening 25 ] a hand side (clamp).

[0036] With the endoscope insertion section 11, the detention tube 31 is inserted into a coelome in this condition. And clip equipment 52 is removed, guide yarn 51 is drawn out, and the detention tube 31 is detained. Extraction of the endoscope insertion section 11 is carried out out of a coelome, and detention is completed. Thereby, a holder 33 is unnecessary.

[0037] In addition, although this invention is applied to the electronic endoscope which contained the image pick-up means which is not illustrated in the point 21 of the endoscope insertion section 11 with the gestalt of this operation, this invention may not be limited to this, but may incorporate the illuminated photographic subject image by the object optical system built in the point, and may apply this invention to the optical endoscope which transmits this incorporated photographic subject image to an eye contacting part with light guide means, such as a relay lens. Moreover, although this invention is applied to what possesses the light equipment which supplies the illumination light in the video processor 3 with the gestalt of this operation, this invention is not limited to this but may apply this invention to the dc-battery type endoscope of a configuration of attaching the dc-battery light equipment which can be freely detached and attached to an endoscope.

[0038] Drawing 9 thru/or drawing 11 start the gestalt of operation of the 2nd of this invention. (Gestalt of the 2nd operation) The explanatory view showing the insertion section tip side of the endoscope with which drawing 9 was equipped with the gestalt of operation of the 2nd of this invention, The explanatory view in which drawing 10 is the explanatory view showing the modification of drawing 9, and drawing 10 (a) shows the insertion section tip side of an endoscope, Drawing 10 (b) is C view Fig. of this drawing (a), and an explanatory view in which drawing 11 shows other modifications of drawing 9, and the explanatory view in which drawing 11 (a) shows the insertion section tip side of an endoscope, and drawing 11 (b) are E view Figs. of this drawing (a).

[0039] Although it considers as the crevice which can hold the detention tube 31 on point 21 periphery of the endoscope insertion section 11 and the slot is formed and constituted from a gestalt of implementation of the above 1st, a treatment implement with the big point for dealing with a body tissue instead of the detention tube 31 consists of gestalten of operation of \*\*\*\* 2 so that the crevice which can be held on point 21 periphery of the endoscope insertion section 11 may be formed. Since the other configuration is the same as that of the gestalt of implementation of the above 1st, it omits explanation, and attaches

and explains the same sign to the same configuration.

[0040] As shown in drawing 9, the endoscope of the gestalt of operation of \*\*\*\* 2 is the same as the channel bore A of the channel 26 for treatment implement insertion as a crevice on point 21 periphery of this endoscope insertion section 11, or it is width of face a little larger than it, and it forms the slot 61 of die-length B longer than the channel bore A in the longitudinal shaft orientations of the insertion section 11. Furthermore, the location of this slot 61 is formed in the sense which makes an abbreviation right angle (the abbreviation (right-and-left LR) curve direction) to the vertical (UD) curve direction of the insertion section bend 22. In addition, said slot 61 can hold the detention tube 31 as well as the gestalt of implementation of the above 1st. Thereby, application of an endoscope is made usable to the endoscopy inserted into coelomata, such as not only an upper gastrointestinal tract but a lower digestive tract.

[0041] Thus, the constituted endoscope can carry out maintenance immobilization of the treatment implement like the gestalt of implementation of the above 1st. In addition, an attitude and rotation of a treatment implement are possible by warming maintenance of annular section 33a of a holder 33.

[0042] Consequently, compared with the gestalt of implementation of the above 1st, the endoscope of the gestalt of operation of \*\*\*\* 2 becomes easier to carry out maintenance immobilization of the treatment implement, and can use the treatment implement of the diameter of macrostomia for a slot 61 rather than the channel 26 for treatment implement insertion. Moreover, since it is not throughout a period of detention tube 31, an outer diameter does not become large unnecessarily. Furthermore, since the vertical (UD) curve direction and abbreviation right angle (the abbreviation (right-and-left LR) curve direction) of a bend 22 were formed in the sense located in a slot 41, the pharynx passage with the longitudinal direction larger than the vertical direction is easy.

[0043] Moreover, an endoscope may be constituted as shown in drawing 10. As shown in drawing 10 (a) and (b), behind said slot 41 formed in point 21 periphery of this endoscope insertion section 11, or said slot 61, an endoscope is a major diameter from the bore of the channel 26 for treatment implement insertion, and forms the large circular slot 62 from the width of face of said slot 41 or said slot 61.

[0044] Thereby, compared with the gestalt of the above 1st and the 2nd implementation, it becomes more certain to carry out maintenance immobilization of said treatment implement or the detention tube 31 at point 21 periphery of the endoscope insertion section 11. Moreover, since end-face 31a of said treatment implement or said detention tube 31 (the inside of drawing detention tube 31) does not project from point end-face 21a of the endoscope insertion section 11 and it moreover becomes a taper by insertion Tokiyasu \*\*, it becomes easy to insert.

[0045] Moreover, an endoscope may be constituted as shown in drawing 11. As shown in drawing 11, while an endoscope forms in the longitudinal shaft orientations of the insertion section 11 the abbreviation semicircle-like slot 63 broader than the bore of said channel 26 for treatment implement insertion which is a major diameter from point apical surface 21a of the endoscope insertion section 11 for a long time than channel 26 bore for treatment implement insertion. Behind this abbreviation semicircle-like slot 63, the step 64 with still wider width of face is formed so that it may become breadth at last to the bore direction of the point 21 of the endoscope insertion section 11 toward said abbreviation semicircle-like slot 63.

[0046] Thereby, compared with the gestalt of implementation of the above 1st, it becomes more certain to carry out maintenance immobilization of said treatment implement or said detention tube 31 at point 21 periphery of the endoscope insertion section 11. Moreover, since a holder 33 comes to be located at a tip, it becomes easy to insert the point 21 of the endoscope insertion section 11.

[0047] (Gestalt of the 3rd operation) Drawing 12 is the explanatory view showing the insertion section tip side of the endoscope concerning the gestalt of operation of the 3rd of this invention. Although the crevice (slot) which can hold a treatment implement or the detention tube 31 is formed and constituted from a gestalt of the above 1st and the 2nd implementation on point 21 periphery of the endoscope insertion section 11, it constitutes from a gestalt of operation of \*\*\*\* 3 so that the free passage way which is open for free passage to the channel 26 for treatment implement insertion as a crevice may be formed. Since the other configuration is the same as that of the gestalt of the above 1st and the 2nd implementation, it omits explanation, and attaches and explains the same sign to the same configuration.

[0048] As shown in drawing 12, the endoscope of the gestalt of operation of \*\*\*\* 3 forms in point 21 periphery of this endoscope insertion section 11 as a crevice the free passage way 65 which is open for free passage to the channel 26 for treatment implement insertion. This free passage way 65 is a bore equivalent to the bore of the channel 26 for treatment implement insertion, and is formed at the include angle of 90 degrees or less of abbreviation to the longitudinal shaft orientations of the insertion section 11.

[0049] Thereby, it becomes possible to hold the detention tube 31 made to meet the periphery of the endoscope insertion section 11 to the point 21 of the endoscope insertion section 11, without using a holder 33. In addition, after inserting said detention tube 31 in said free passage way 65 and holding to the point 21 of the endoscope insertion section 11, in case [ this ] it inserts into a coelome a condition and detains near the purpose part, said detention tube 31 can be drawn out from said free passage way 65, and the detention tube 31 can be detained in pulling the end face side of said detention tube 31 from said processing implement insertion opening 20.

[0050] Consequently, since the holder 33 is unnecessary, compared with the gestalt of the above 1st and the 2nd implementation, it becomes easy to operate the endoscope of the gestalt of operation of \*\*\*\* 3.

[0051] (Gestalt of the 4th operation) The explanatory view showing the insertion section tip side of the endoscope with which drawing 13 and drawing 14 started the gestalt of operation of the 4th of this invention, and drawing 13 was equipped with the gestalt of operation of the 4th of this invention, and drawing 14 are the explanatory views showing the modification of drawing 13, and the explanatory view showing [ 1414 ] the insertion section tip side of an endoscope (a) and drawing 14 R> 4 (b) are G view Figs. of this drawing (a).

[0052] Although a crevice is formed in point 21 periphery of the endoscope insertion section 11 and the treatment implement or the detention tube 31 is considered as the configuration which can be held to the point 21 of the endoscope insertion section 11 with the gestalt of the above 1st - the 3rd implementation using the channel 26 for treatment implement insertion, at the gestalt [ \*\*\*\* / 4 ] of operation, it carries out as the configuration which can hold a treatment implement or the detention tube 31 to the point 21 of the endoscope insertion section 11, without using the channel 26 for treatment implement insertion. Since the



other configuration is the same as that of the gestalt of the above 1st - the 3rd implementation, it omits explanation, and attaches and explains the same sign to the same configuration.

[0053] As shown in drawing 13 (a) and (b), the endoscope of the gestalt of operation of \*\*\*\* 4 is the same as the outer diameter of a treatment implement or the detention tube 31, or forms the height 66 in which hole 66a of a some narrow diameter was formed in a taper to the point 21 of said endoscope insertion section 11, and is constituted. In addition, a through tube is sufficient as said hole 66a.

[0054] Thereby, it becomes possible to hold the detention tube 31 made to meet the periphery of the endoscope insertion section 11 to the point 21 of the endoscope insertion section 11, without using a holder 33. In addition, after inserting said detention tube 31 in hole 66a of said height 66 and holding to the point 21 of the endoscope insertion section 11, In case it inserts into a coelome in this condition and detains near the purpose part Said detention tube 31 can be drawn out from hole 66a of said height 66, and the detention tube 31 can be detained now in pulling the end face side of said detention tube 31 from the processing implement insertion opening 20.

[0055] Moreover, as shown in drawing 14, an arm-like attaching part may be prepared and constituted in the point 21 of the endoscope insertion section 11 instead of said height 66. As shown in drawing 14, the endoscope has formed the arm-like attaching part 67 formed in point 21 periphery of this endoscope insertion section 11 by the elastic elastomer, and can carry out now insertion maintenance of the guidewire 68 between this arm-like attaching part 67 and the point 21 of the endoscope insertion section 11.

[0056] A guidewire 68 is put and held to the arm-like attaching part 67, and meet a guide in this guidewire 68, the detention tube 31 is made to meet the endoscope insertion section 11, and it holds, and inserts near the purpose part in a coelome. And it detains by making the detention tube 31 free by drawing out a guidewire 68. Then, extraction of the insertion section 11 is carried out out of a coelome, and detention of the detention tube 31 is completed.

[0057] Thereby, it becomes possible to hold the point of the treatment implement or the detention tube 31 made to meet point 21 periphery of the endoscope insertion section 11 to the point 21 of the endoscope insertion section 11 through a guidewire 68, without using a holder 33. In addition, although not illustrated, you may constitute so that a direct treatment implement or the detention tube 31 may be put between said arm-like attaching part 67.

[0058] Consequently, in addition to the effectiveness of the gestalt of implementation of the above 3rd, the endoscope of the gestalt of operation of \*\*\*\* 4 is freely usable in the channel 26 for treatment implement insertion.

[0059] (Gestalt of the 5th operation) Drawing 15 is the explanatory view showing the insertion section tip side of the endoscope concerning the gestalt of operation of the 5th of this invention. Although the treatment implement or the detention tube 31 is considered as the configuration which can be held to the point 21 of the endoscope insertion section 11 with the gestalt of implementation of the above 4th, without preparing a height and an arm-like attaching part in point 21 periphery of the endoscope insertion section 11, and using the channel 26 for treatment implement insertion With the gestalt of operation of \*\*\*\* 5, the point 21 of the endoscope insertion section 11 is attached for a wrap cap, enabling free attachment and detachment, and it considers as the configuration which can hold a treatment implement or the detention tube 31 with this cap. Since the other configuration is the same as that of the gestalt of implementation of the above 4th, it omits explanation, and attaches and explains the same sign to the same configuration.

[0060] As shown in drawing 15, the endoscope of the gestalt of operation of \*\*\*\* 5 forms the transparence cap 69 which can be attached in the point 21 of this endoscope insertion section 11 free [ attachment and detachment ]. This transparence cap 69 is the same as the outer diameter of said treatment implement or the detention tube 31, or forms side hole 69a of a some narrow diameter.

[0061] The transparence cap 69 is attached in the point 21 of the endoscope insertion section 11, and while holding with the holder 33 (maintenance forceps 70) which inserted the guidewire 68 in through and the channel 26 for treatment implement insertion at side hole 69a of this transparence cap 69, it holds in the condition of meeting a guide in a guidewire 68 and having made the detention tube 31 meeting the insertion section 11, and inserts near the purpose part in a coelome. And maintenance of a holder 33 (maintenance forceps 70) is canceled, a guidewire 68 is removed, and it detains by making the detention tube 31 free by drawing out this guidewire 68. Then, extraction of the insertion section 11 is carried out out of a coelome, and detention of the detention tube 31 is completed. In addition, although not illustrated, you may make it hold the direct detention tube 31 with the maintenance forceps 70 through a guidewire 68.

[0062] Consequently, since the endoscope of the gestalt of operation of \*\*\*\* 5 only attaches only the transparence cap 69 which can be detached and attached freely compared with the gestalt of the above 1st - the 4th implementation, the special endoscope into which the point 21 of the endoscope insertion section 11 was processed does not need to be used for it.

[0063] By the way, the detention tube 31 used with the gestalt of the above 1st - the 5th implementation may be constituted as shown in drawing 16. Drawing 16 is the explanatory view showing a detention tube.

[0064] As shown in drawing 16 (a), the detention tube 71 forms stop slot 71c held by annular section 33a of a holder 33, and is constituted while it makes tip 71a a dead end and forms side hole 71b. Moreover, as shown in drawing 16 (b), the detention tube 72 prepares stadium section 72a at a tip, has neck 72c and is constituted while it forms side hole 72b. Moreover, as shown in drawing 16 (c), the detention tube 73 prepares 73d of crepe sections at a tip, and is constituted. In addition, what formed the stop slots 71b and 72b in the direction of slant, and constituted them is sufficient as said detention tubes 71 and 72. With these detention tubes 71-73, maintenance of the detention tube 31 by annular section 33a of a holder 33 becomes more certain.

[0065] In addition, deformation implementation is variously possible for this invention in the range which is not limited only to the above-mentioned gestalt of operation and does not deviate from the summary of this invention.

[0066] [Additional remark]

(Additional remark term 1) Endoscope characterized by forming the crevice for making a treatment implement or a detention tube meet the periphery shaft orientations of the endoscope insertion section, and holding the point of said treatment implement or a detention tube to the point of said endoscope insertion section in the point side of said endoscope insertion section.

[0067] (Additional remark term 2) It is arranged in endoscope insertion circles and has the channel for treatment implement insertion which carries out opening to the point of this endoscope insertion section. The crevice for making a treatment implement or a detention tube meet the periphery shaft orientations of the endoscope insertion section, and holding the point of



said treatment implement or a detention tube to the point of said endoscope insertion section. The endoscope characterized by forming in the point periphery of said endoscope insertion section toward a end face side from tip opening of said channel for treatment implement insertion.

[0068] (Additional remark term 3) Make the periphery shaft orientations of said endoscope insertion section meet, and the point of said treatment implement or said detention tube is arranged to said crevice. Insert said holder in said channel for treatment implement insertion, and it is made to project into said crevice from tip opening of this channel for treatment implement insertion. The point of said treatment implement or said detention tube is held with the holder made to project into this crevice. Said holder is made to draw in said channel for treatment implement insertion, where the point of these treatment implement or a detention tube is held. A treatment implement given in the additional remark term 2 characterized by making said crevice carry out maintenance immobilization of the point of said treatment implement or said detention tube, or the maintenance fixed approach of a detention tube.

[0069] (Additional remark term 4) The channel for treatment implement insertion which it is arranged in the insertion circles of an endoscope and carries out opening to the point of this insertion section, The treatment implement for dealing with the detention tube or inside-of-the-body tissue which detains into a coelome is made to meet the appearance section of the insertion section of said endoscope. The slot which carries out opening of said channel for treatment implement insertion to the appearance section of said insertion section toward a end face side from opening of the point of said channel for treatment implement insertion in order to hold the point of said detention tube or a treatment implement to the point of said endoscope insertion section, The holder which is made to project from said slot through said channel for treatment implement insertion, and holds the perimeter of the outer-diameter section of said detention tube or a treatment implement, Endoscope equipment characterized by drawing this holder in said channel for treatment implement insertion, and providing an actuation means of said detention tube or a treatment implement to contain near the point to said Mizouchi at least.

[0070] (Additional remark term 5) Endoscope given in the additional remark term 1 characterized by forming said crevice in the longitudinal shaft orientations of said endoscope insertion section toward a back side from the tip side of said endoscope insertion section.

[0071] (Additional remark term 6) It is an endoscope given in the additional remark term 1 which has the endoscope insertion section which carried out insertion arrangement of the channel for treatment implement insertion, and is characterized by said crevice being a slot which carries out opening to the point periphery of said endoscope insertion section toward a end face side from tip opening of said channel for treatment implement insertion.

[0072] (Additional remark term 7) Endoscope given in the additional remark term 1 characterized by forming the stop means for making the end face side of said treatment implement or said detention tube meet said endoscope insertion section in an endoscope control unit.

[0073] (Additional remark term 8) Endoscope given in the additional remark term 1 characterized by forming the stop means for making the end face side of said treatment implement or said detention tube meet said endoscope insertion section in the end face side of said treatment implement or said detention tube.

[0074] (Additional remark term 9) Said holder is an endoscope given in the additional remark term 2 which is the snare and is characterized by holding the point of said detention tube by the annular section prepared in the point of this snare.

[0075] (Additional remark term 10) Endoscope of the publication by the additional remark term 2 characterized by to form a stop means for said holder to stop [ to have the endoscope insertion section which carried out insertion arrangement of the channel for treatment implement insertion, and ] the end face side of said holder projected from end face side opening of said channel for treatment implement insertion to an endoscope control unit where the point of said treatment implement or said detention tube is held in the end face side of said holder.

[0076] (Additional remark term 11) Said detention tube is an endoscope given in the additional remark term 2 characterized by being formed with the elasticity ingredient.

[0077] (Additional remark term 12) Said detention tube is an endoscope given in the additional remark term 2 characterized by being formed with silicone or a PTFE (polytetrafluoroethylene) elasticity ingredient.

[0078] (Additional remark term 13) Said detention tube is an endoscope given in the additional remark term 2 characterized by the ability to insert in a treatment implement.

[0079] (Additional remark term 14) Endoscope given in the additional remark term 2 characterized by preparing the stop section which stops the point of said attaching part in the tip side of said detention tube.

[0080] (Additional remark term 15) Endoscope given in the additional remark term 6 characterized by forming said slot in the sense which makes the vertical curve direction and abbreviation right angle of an endoscope bend.

[0081] (Additional remark term 16) said slot -- the diameter and EQC of said treatment implement or said detention tube -- or endoscope given in the additional remark term 6 characterized by forming in large width of face.

[0082] (Additional remark term 17) Endoscope given in the additional remark term 6 characterized by forming end face side opening of said slot so that it may incline toward the tip side direction of said endoscope insertion section.

[0083]

[Effect of the Invention] As explained above, according to this invention, it is possible to hold a treatment implement with a big tip or a detention tube free [ attachment and detachment ] to the point of the endoscope insertion section simple.

[Translation done.]

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DESCRIPTION OF DRAWINGS

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## [Brief Description of the Drawings]

[Drawing 1] The outline block diagram of endoscope equipment equipped with the gestalt of operation of the 1st of this invention

[Drawing 2] The explanatory view at the time of attaching a stop implement in the endoscope control unit of drawing 1

[Drawing 3] The explanatory view showing the point of the endoscope insertion section of drawing 1

[Drawing 4] The explanatory view at the time of holding the detention tube to the point of the endoscope insertion section of drawing 3

[Drawing 5] The explanatory view explaining an operation of the gestalt of operation of the 1st of this invention

[Drawing 6] The explanatory view showing the modification of the stop implement of drawing 2

[Drawing 7] The explanatory view showing other modifications of the stop implement of drawing 2

[Drawing 8] The explanatory view in which it is shown near the treatment implement insertion opening of the endoscope control unit at the time of using guide yarn instead of the holder of drawing 2

[Drawing 9] The explanatory view showing the insertion section tip side of the endoscope equipped with the gestalt of operation of the 2nd of this invention

[Drawing 10] The explanatory view showing the modification of drawing 9

[Drawing 11] The explanatory view showing other modifications of drawing 9

[Drawing 12] The explanatory view showing the insertion section tip side of the endoscope concerning the gestalt of operation of the 3rd of this invention

[Drawing 13] The explanatory view showing the insertion section tip side of the endoscope equipped with the gestalt of operation of the 4th of this invention

[Drawing 14] The explanatory view showing the modification of drawing 13

[Drawing 15] The explanatory view showing the insertion section tip side of the endoscope concerning the gestalt of operation of the 5th of this invention

[Drawing 16] The explanatory view explaining a detention tube

[Drawing 17] The explanatory view in the case of detaining the conventional detention tube in a coelome

[Drawing 18] The explanatory view in the case of detaining the different conventional detention tube from drawing 17 in a coelome

## [Description of Notations]

1 — Endoscope Equipment

2 — Endoscope

11 — Insertion Section (Endoscope Insertion Section)

12 — Control Unit

21 — Point

25 — Treatment Implement Insertion Opening

26 — Channel for Treatment Implement Insertion

26a — Tip opening of the channel for treatment implement insertion

31 — Detention Tube

32 — Stop Implement

33 — Holder

41 — Slot (Crevice)

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[Translation done.]

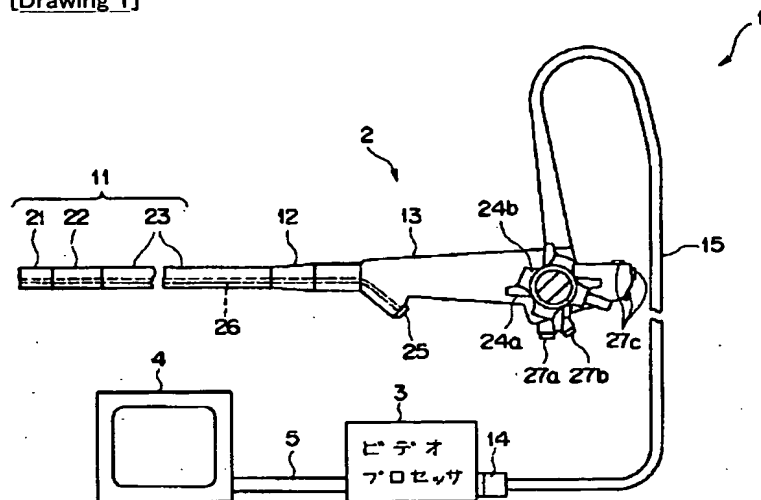
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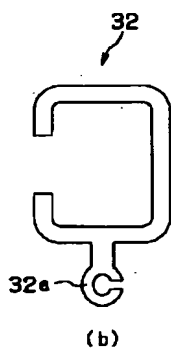
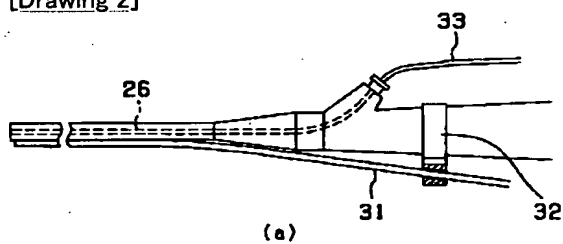
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## DRAWINGS

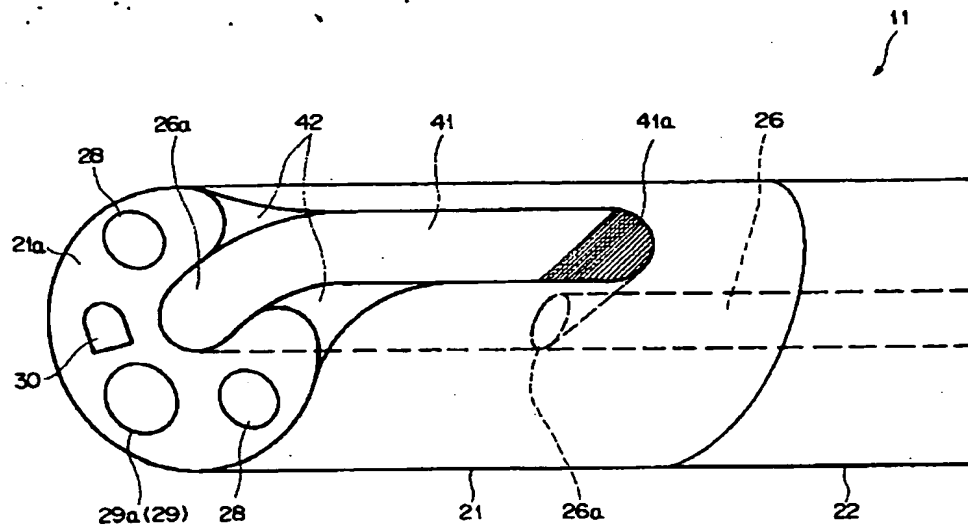
[Drawing 1]



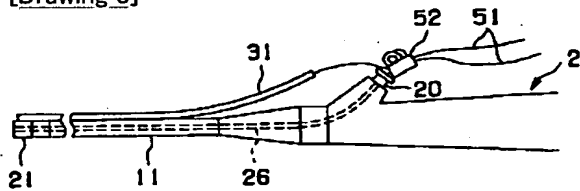
[Drawing 2]



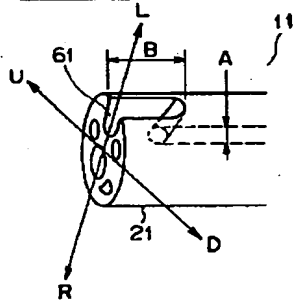
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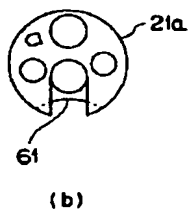
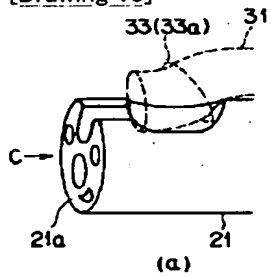
[Drawing 8]



[Drawing 9]



[Drawing 10]



[Drawing 12]

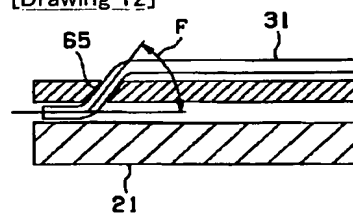
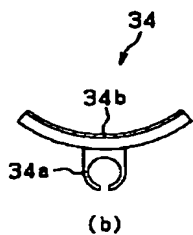
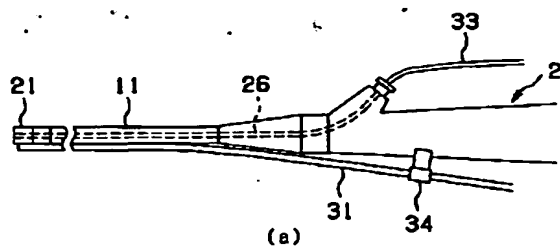
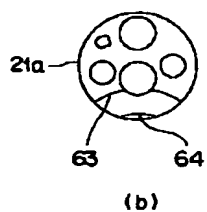
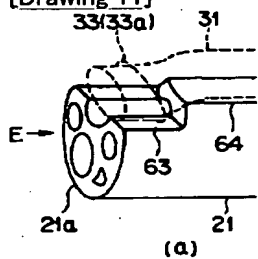


Figure 4 consists of three cross-sectional views (a, b, and c) of a medical device, likely a catheter, showing its deployment into a vessel (11). The device includes a catheter (31) with a distal tip (22) and a sheath (21). The catheter (31) has a lumen (30) and a side opening (33). The sheath (21) has a distal tip (22) and a side opening (29a(29)). The device is shown in three states: (a) initial deployment, (b) partial deployment, and (c) full deployment. The vessel (11) is shown as a tube with a lumen (11a). The catheter (31) is shown with a lumen (30) and a side opening (33). The sheath (21) is shown with a distal tip (22) and a side opening (29a(29)). The device is shown in three states: (a) initial deployment, (b) partial deployment, and (c) full deployment. The vessel (11) is shown as a tube with a lumen (11a). The catheter (31) is shown with a lumen (30) and a side opening (33). The sheath (21) is shown with a distal tip (22) and a side opening (29a(29)).

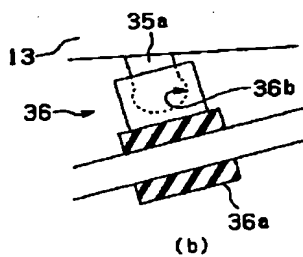
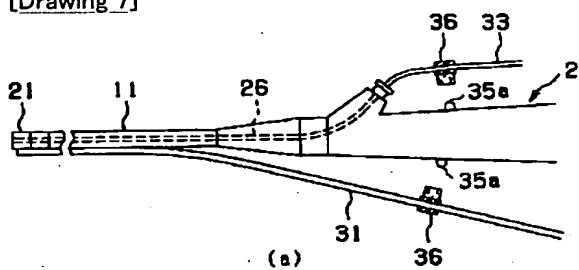
[Drawing 6]



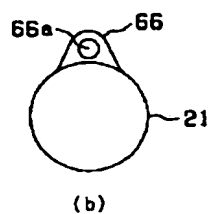
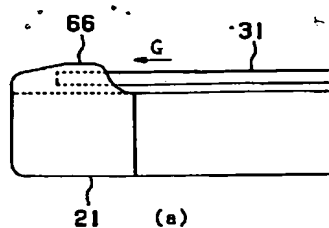
[Drawing 11]



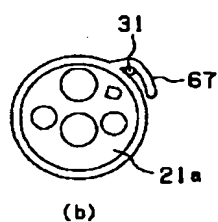
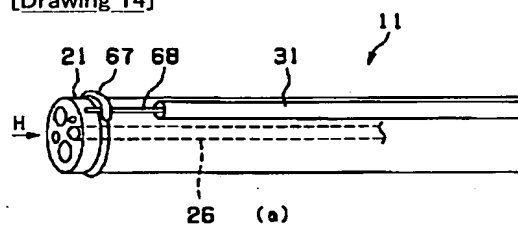
[Drawing 7]



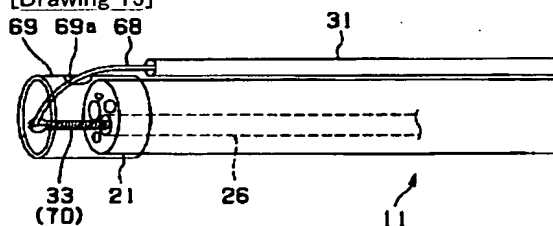
[Drawing 13]



[Drawing 14]



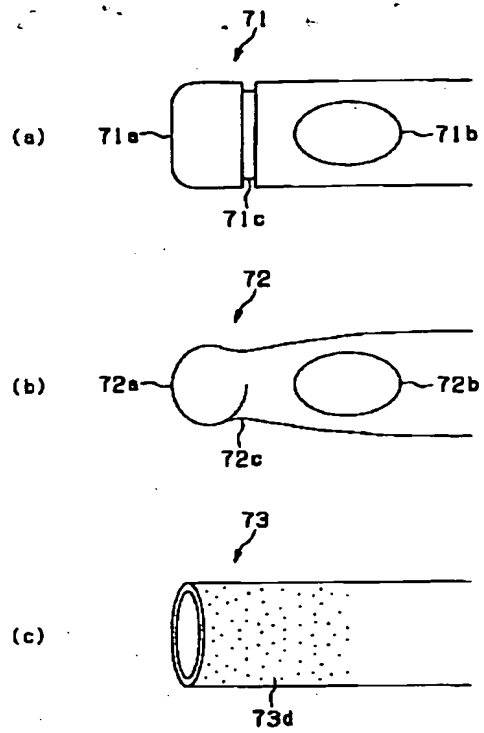
[Drawing 15]



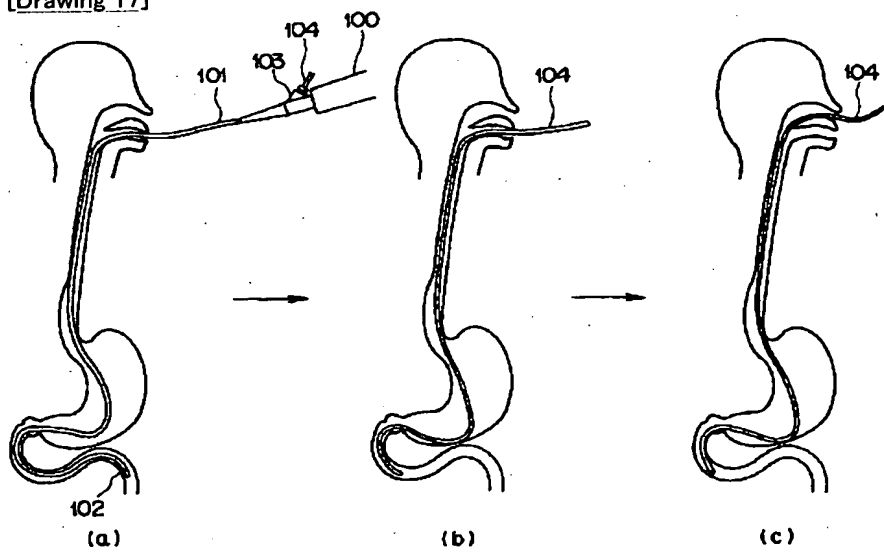
[Drawing 16]



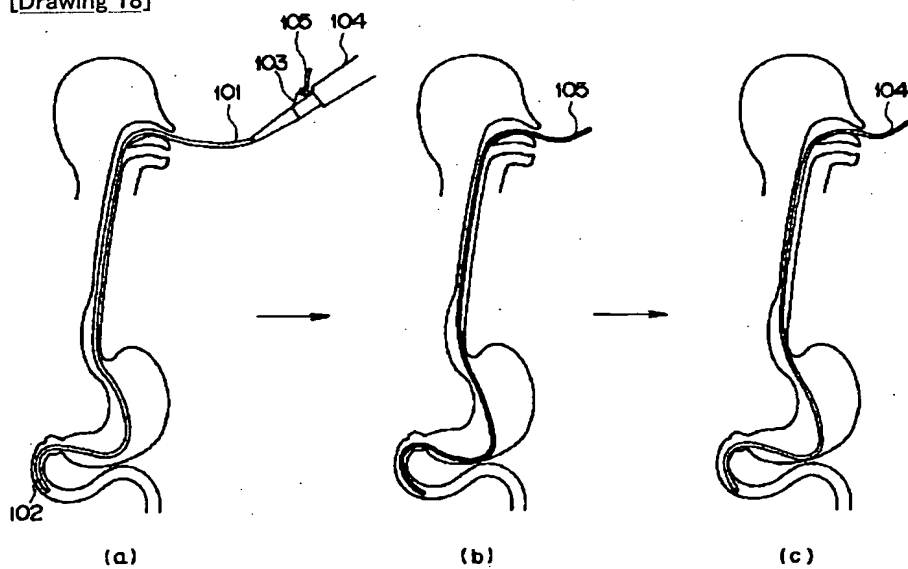




[Drawing 17]



[Drawing 18]



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[Translation done.]

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17/22	3 2 0	17/22	3 2 0
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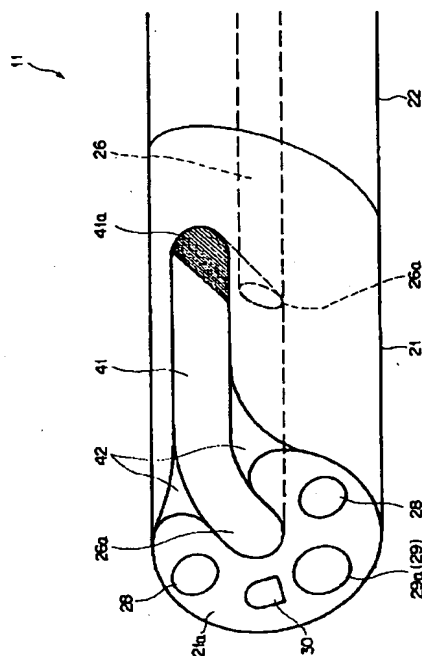
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(54) 【発明の名称】 内視鏡、処置具又は留置チューブの保持固定方法及び内視鏡装置

(57) 【要約】

【課題】 簡便に先端が大きな処置具又は留置チューブを内視鏡挿入部の先端部に着脱自在に保持可能とする。

【解決手段】 内視鏡2は、内視鏡挿入部11内に配設され、この内視鏡挿入部11の先端部21に開口する処置具挿通用チャンネル26を有している。前記内視鏡2は、処置具又は留置チューブを前記内視鏡挿入部11の外周軸方向に沿わせ、前記処置具又は留置チューブの先端部を前記内視鏡挿入部11の先端部21に保持するための溝部(凹部)41を、前記処置具挿通用チャンネル26の先端開口部26aから基端側に向かって前記内視鏡挿入部11の先端部21外周に形成されている。



## 【特許請求の範囲】

【請求項1】 処置具又は留置チューブを内視鏡挿入部の外周軸方向に沿わせ、前記処置具又は留置チューブの先端部を前記内視鏡挿入部の先端部に保持するための凹部を、前記内視鏡挿入部の先端部側に形成したことを特徴とする内視鏡。

【請求項2】 内視鏡挿入部に配設され、この内視鏡挿入部の先端部に開口する処置具挿通用チャンネルを有し、

処置具又は留置チューブを内視鏡挿入部の外周軸方向に沿わせ、前記処置具又は留置チューブの先端部を前記内視鏡挿入部の先端部に保持するための凹部を、前記処置具挿通用チャンネルの先端開口から基端側に向かって前記内視鏡挿入部の先端部外周に形成したことを特徴とする内視鏡。

【請求項3】 前記内視鏡挿入部の外周軸方向に沿わせて前記処置具又は前記留置チューブの先端部を前記凹部に配置し、

前記保持具を前記処置具挿通用チャンネルに挿入してこの処置具挿通用チャンネルの先端開口から前記凹部内へ突出させ、

この凹部内へ突出させた保持具で前記処置具又は前記留置チューブの先端部を保持し、

これら処置具又は留置チューブの先端部を保持した状態で前記保持具を前記処置具挿通用チャンネル内に引き込ませて、前記処置具又は前記留置チューブの先端部を前記凹部に保持固定させることを特徴とする請求項2に記載の処置具又は留置チューブの保持固定方法。

【請求項4】 内視鏡の挿入部に配設され、この挿入部の先端部に開口する処置具挿通用チャンネルと、  
体腔内へ留置する留置チューブ又は体内組織を処置するための処置具を前記内視鏡の挿入部の外形部に沿わせ、前記留置チューブ又は処置具の先端部を前記内視鏡挿入部の先端部に保持するために前記処置具挿通用チャンネルの先端部の開口から基端側に向かって前記処置具挿通用チャンネルを前記挿入部の外形部に開口する溝と、前記処置具挿通用チャンネルを介して前記溝から突出させ、前記留置チューブ又は処置具の外径部周囲を保持する保持具と、

この保持具を前記処置具挿通用チャンネル内に引き込んで前記留置チューブ又は処置具の少なくとも先端部近傍を前記溝内に収納する操作手段と、  
を具備することを特徴とする内視鏡装置。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】 本発明は、内視鏡、処置具又は留置チューブの保持固定方法及び内視鏡装置に関する。

## 【0002】

【従来の技術】 一般に、医療用等に用いられる内視鏡

は、生体体腔内の小手術や生体組織の検査等を行うことができる。上記内視鏡は、挿入部に挿通配設された処置具挿通用チャンネルを介して処置具や留置チューブを体腔内へ導き、生体組織を処置したり、留置チューブを体腔内へ留置したりしている。

【0003】 従来、例えば、留置チューブを体腔内に留置する場合は、図17又は図18に示すような方法がある。図17(a)に示すように術者は、先ず内視鏡100の挿入部101を経口的に挿入して挿入部先端部102を目的部位まで到達させる。次に、この内視鏡100の処置具挿入口103に直接留置チューブ104を挿入して図示しない処置具挿通用チャンネルを挿通させて目的部位で留置チューブ104を留置する。そして、図17(b)に示すように内視鏡100を抜去する。次に、図17(c)に示すように図示しないガイドワイヤや補助具を使って鼻側に留置チューブを移し、留置が完了する。

【0004】 一方、図18(a)に示すように術者は、先ず内視鏡100の挿入部101を経鼻的に挿入して挿入部先端部102を目的部位まで到達させる。次に、この内視鏡100の処置具挿入口103にガイドワイヤ105を挿入して図示しない処置具挿通用チャンネルを挿通させて目的部位でガイドワイヤ105を留置する。そして、図18(b)に示すように内視鏡100を抜去する。次に、図18(c)に示すようにこの留置したガイドワイヤ105に沿わせて留置チューブ104を留置し、ガイドワイヤ105を抜去して留置が完了する。

【0005】 このような内視鏡は、例えば、実開昭63-24883号公報に記載されているように、処置具挿通用チャンネル内にガイドワイヤを挿入し、そのガイドワイヤをガイドに内視鏡用プロステーセスを挿入して、目的部位に内視鏡プロステーセスを留置できるようなものが提案されている。尚、留置チューブに関しては、内視鏡を使わず、セデーションをかけてX線透視下で盲目的にチューブを経口又は経鼻挿入し、留置することもある。

【0006】 また、このような内視鏡は、例えば、実開昭60-34242号公報や実開平5-21901号公報に記載されているように挿入部に外付けチャンネルを取り付け、この外付けチャンネルを介して処置具等を体腔内に挿入可能なものが提案されている。

【0007】 前者（実開昭60-34242号公報）に記載されている内視鏡は、この挿入部先端部にワイヤに係合する貫通孔を形成し、この貫通孔内を通して折り返された両端が手元側になるように配置されたワイヤを設けている。そして、上記ワイヤの一端に処置具が通るチューブの先端部を連通し、ワイヤの他端を引き寄せ、上記貫通孔にチューブの先端部を導き嵌合して、内視鏡の先端部にチューブを外付けできるようになっている。

【0008】 一方、後者（実開平5-21901号公

報)に記載されている内視鏡は、この挿入部先端部に容易にチューブが任意の位置・方向に着脱できるように、チューブ先端に粘着層を有するシート状の取り付け部を設け、挿入部先端部にチューブを外付けできるようになっている。

【0009】

【発明が解決しようとする課題】ところで、近年、内視鏡は、体腔内等への挿入操作性や患者の苦痛軽減等のために挿入部の細径化が図られており、それに応じて留置チューブや処置具を挿通する処置具挿通用チャンネルも

細くなる傾向にある。このため、従来サイズの留置チューブが使用し難くなったり、カップ等の先端部が大きな処置具が挿通し難くなるという不具合が生じている。

【0010】また、留置チューブを処置具挿通用チャンネルを介して挿入する際は、留置チューブの内外径のサイズが制限されるばかりか、留置チューブの長さを不必要に長く(内視鏡挿入部の倍以上の長さ)する必要があった。また、ガイドワイヤを留置し、このガイドワイヤを介して留置チューブを体腔内へ留置する場合は、内視鏡を体腔内から体外に抜去する必要があり、術式が煩雑で手間がかかっていた。尚、このとき、上記留置を内視鏡観察下で行わないことにしても、術式が煩雑で手間がかかっていた。

【0011】一方、上記実開昭60-34242号公報や実開平5-21901号公報に記載の内視鏡は、外付けチャンネルを挿入部に装着するのが煩雑であったり、容易に外付け可能であるが、 unnecessary場合に簡単な外すことができなかった。また、簡単に外付けチャンネルを挿入部から外せたとしても、挿入部先端部の外周に体腔内の粘着部等の生体組織が残る場合があった。

【0012】また、これら実開昭60-34242号公報や実開平5-21901号公報に記載の内視鏡は、もちろん目的部位にチャンネル(チューブ)を留置することはできなかった。また、処置具の太さだけでなく、外付けチャンネルを取り付けた外径分挿入部が太くなってしまいう問題があった。尚、内視鏡を使わず、留置チューブを留置しようとする、クリティカルな患者にはセデーションが使えないのですぐに留置チューブを留置できなかったり、留置チューブを盲目的に体腔内に入れるので熟練を要し、時間がかかったり、X線を使用する必要がある等の問題があった。

【0013】本発明は、これらの事情に鑑みてなされたものであり、簡便に先端が大きな処置具又は留置チューブを内視鏡挿入部の先端部に着脱自在に保持可能な内視鏡、処置具又は留置チューブの保持固定方法及び内視鏡装置を提供することを目的とする。

【0014】

【課題を解決するための手段】前記目的を達成するため、本発明の請求項1の内視鏡は、処置具又は留置チューブを内視鏡挿入部の外周軸方向に沿わせ、前記処置具

又は留置チューブの先端部を前記内視鏡挿入部の先端部に保持するための凹部を、前記内視鏡挿入部の先端部側に形成したことを特徴としている。また、本発明の請求項2の内視鏡は、内視鏡挿入部に配設され、この内視鏡挿入部の先端部に開口する処置具挿通用チャンネルを有し、処置具又は留置チューブを内視鏡挿入部の外周軸方向に沿わせ、前記処置具又は留置チューブの先端部を前記内視鏡挿入部の先端部に保持するための凹部を、前記処置具挿通用チャンネルの先端開口から基端側に向かって前記内視鏡挿入部の先端部外周に形成したことを特徴としている。また、本発明の請求項3の処置具又は留置チューブの保持固定方法は、請求項2に記載の内視鏡において、前記内視鏡挿入部の外周軸方向に沿わせて前記処置具又は前記留置チューブの先端部を前記凹部に配置し、前記保持具を前記処置具挿通用チャンネルに挿入してこの処置具挿通用チャンネルの先端開口から前記凹部内へ突出させ、この凹部内へ突出させた保持具で前記処置具又は前記留置チューブの先端部を保持し、これら処置具又は留置チューブの先端部を保持した状態で前記保持具を前記処置具挿通用チャンネル内に引き込ませて、前記処置具又は前記留置チューブの先端部を前記凹部に保持固定させることを特徴としている。また、本発明の請求項4の内視鏡装置は、内視鏡の挿入部に配設され、この挿入部の先端部に開口する処置具挿通用チャンネルと、体腔内へ留置する留置チューブ又は体内組織を処置するための処置具を前記内視鏡の挿入部の外形部に沿わせ、前記留置チューブ又は処置具の先端部を前記内視鏡挿入部の先端部に保持するために前記処置具挿通用チャンネルの先端部の開口から基端側に向かって前記処置具挿通用チャンネルを前記挿入部の外形部に開口する溝と、前記処置具挿通用チャンネルを介して前記溝から突出させ、前記留置チューブ又は処置具の外径部周囲を保持する保持具と、この保持具を前記処置具挿通用チャンネル内に引き込んで前記留置チューブ又は処置具の少なくとも先端部近傍を前記溝内に収納する操作手段と、を具備することを特徴としている。これにより、簡便に先端が大きな処置具又は留置チューブを内視鏡挿入部の先端部に着脱自在に保持可能とする。

【0015】

【発明の実施の形態】以下、図面を参照して本発明の実施の形態を説明する。

(第1の実施の形態)図1ないし図8は本発明の第1の実施の形態に係り、図1は本発明の第1の実施の形態を備えた内視鏡装置の概略構成図、図2は図1の内視鏡操作部に係止具を取り付けた際の説明図であり、図2

(a)は内視鏡操作部の処置具挿入口近傍を示す説明図、図2(b)は同図(a)の係止具を示す外観図、図3は図1の内視鏡挿入部の先端部を示す説明図、図4は図3の内視鏡挿入部の先端部に留置チューブを保持している際の説明図であり、図4(a)は保持具を突出させ

た際の説明図、図4(b)は同図(a)の状態から保持具の環状部により留置チューブの先端部を引っかけて保持している途中の説明図、図4(c)は同図(b)の状態から保持具の環状部により留置チューブの先端部を保持し、保持具を処置具挿通用チャンネル内に引き込ませた際の説明図、図5は本発明の第1の実施の形態の作用を説明する説明図であり、図5(a)は内視鏡挿入部を留置チューブと共に、経口的に体腔内に挿入している際の説明図、図5(b)は同図(a)の状態から留置チューブを外し、目的部位に留置している途中の説明図、図5(c)は同図(b)の状態から内視鏡挿入部を体腔内から抜去した際の説明図、図6は図2の係止具の変形例を示す説明図であり、図6(a)は内視鏡操作部の処置具挿入口近傍を示す説明図、図6(b)は同図(a)の係止具を示す外観図、図7は図2の係止具の他の変形例を示す説明図であり、図7(a)は内視鏡操作部の処置具挿入口近傍を示す説明図、図7(b)は同図(a)の係止具を示す外観図、図8は図2の保持具の代わりにガイド糸を用いる際の内視鏡操作部の処置具挿入口近傍を示す説明図である。

【0016】図1に示すように本発明の第1の実施の形態を備えた内視鏡装置1は、撮像装置として図示しない撮像手段を有する電子内視鏡(単に内視鏡)2と、この内視鏡2で得た画像信号に対して信号処理を行うビデオプロセッサ3と、このビデオプロセッサ3から出力される映像信号を受けて内視鏡画像を表示するモニタ4とで主に構成されている。尚、前記ビデオプロセッサ3と前記モニタ4とは、接続ケーブル5で接続される。

【0017】前記内視鏡2は、先端部に図示しない撮像手段を内蔵し、観察対象の管腔内に挿入可能な細長で可撓性を有する挿入部11と、この挿入部11の基端側に折れ止め部12を介して連結した保持部を兼ねる操作部13と、この操作部13の側部から延出し、端部にコネクタ部14を有する可撓性のユニバーサルコード15とから構成される。

【0018】前記挿入部11は、先端から硬質の先端部21と、この先端部21の基端側に連設され、湾曲自在な湾曲部22と、この湾曲部22の基端側に連設され、可撓性の可撓管部23とで構成される。前記操作部13は、前記挿入部11の湾曲部22を遠隔操作で上下方向に湾曲させる上下湾曲操作ノブ24aと、同じく前記湾曲部22を左右方向に湾曲させる左右湾曲操作ノブ24bとを設けており、これら上下操作ノブ24aと左右操作ノブ24bとを同時に行うことで、上下左右の中間方向(ツイスト方向)へも湾曲させることができる。

【0019】また、前記操作部13は、この前端付近に後述するスネア鉗子等の先端部が小さな処置具を挿入する処置具挿入口25が設けられており、その内部に挿通配設された処置具挿通用チャンネル26を経て処置具の先端側を前記挿入部11の先端部21の開口から突出可

能となっている。また、前記操作部13は、送気・送水操作を遠隔操作する送気送水ボタン27a、吸引操作を遠隔操作する吸引ボタン27b及び画像静止ボタン、リリースボタン、調光方法切り換えボタン等のビデオプロセッサ3の機能を遠隔操作する操作スイッチ27cを設けている。

【0020】前記内視鏡2は、前記ユニバーサルコード15のコネクタ部14を介して前記ビデオプロセッサ3と着脱自在に接続されるようになっている。尚、前記ビデオプロセッサ3は、図示しない光源装置と送気送水装置を具備している。また、前記ビデオプロセッサ3は、図示しないVTRデッキ、ビデオプリンタ、ビデオディスク等の周辺機器が接続可能である。

【0021】前記内視鏡2は、前記ユニバーサルコード15のコネクタ部14を前記ビデオプロセッサ3に着脱自在に接続することで、図示しない光源装置から照明光が供給されるようになっている。前記光源装置から供給された照明光は、内視鏡2内の図示しないライトガイドを経由して2ケの照明光学系28から被写体を照明するようになっている(図3参照)。

【0022】照明された被写体像は、前記内視鏡挿入部11の先端部21に内蔵された対物光学系29から取り込まれ、前記撮像手段で撮像されるようになっている。ビデオプロセッサ3は、前記内視鏡2の撮像手段からの撮像信号を図示しない信号処理回路で信号処理し、前記接続ケーブル5を介してモニタ4に伝送して内視鏡画像を表示させるようになっている。

【0023】また、ビデオプロセッサ3の図示しない送気送水装置から供給される空気と水は、内視鏡2内の図示しない送気送水管路を経由して送気送水ノズル30からは前記対物光学系29の先端レンズ29a外面に向けて必要時に流せるようになっている。

【0024】図2(a)に示すように前記内視鏡2は、この操作部13に処置具又は留置チューブ31の手元側を係止するための係止具32を取り付け可能である。この係止具32により、前記処置具又は前記留置チューブ31の手元側を係止し、これら処置具又は留置チューブ31を内視鏡挿入部の外周部に沿わせることが可能となる。尚、図2(a)中では、留置チューブ31を記載している。

【0025】図2(b)に示すように前記係止具32は、シリコン等の弾性ゴムや弾性エラストマで形成されており、前記留置チューブ31を係止する係止部32aを有して構成されている。尚、前記処置具挿入口25には、前記処置具又は留置チューブ31の先端部を保持するための保持具33が挿入される。本実施の形態で用いられる保持具33は、先端にワイヤで形成される環状部33aを有するスネア鉗子である(図4参照)。後述するようにこの保持具33の環状部33aにより、前記処置具又は留置チューブ31の先端部付近を引っかけて

保持するようになっている。尚、使用される留置チューブ31は、シリコンやPTFE (polytetrafluoroethylene) 等の軟質チューブで形成されている。また、前記留置チューブ31は、処置具を挿通可能で、目的部位の処置ができるようなものでも良い。

【0026】また、係止具は、図6に示すような構成のものでも良い。図6(a)に示すように前記内視鏡2は、この操作部13に処置具又は留置チューブ31の手元側を係止するための係止具34を取り付け可能である。前記係止具34は、シリコン等の弾性ゴムや弾性エラストマで形成されている。図6(b)に示すように前記係止具34は、留置チューブ31を係止する係止部34aを有している。また、前記係止具34は、内視鏡操作部13に外周に粘着固定可能な粘着部34bを有している。尚、この粘着部34bの粘着力は外し易く、しかも粘着が操作部13側に残らず、しかも、粘着力の持続性があるようなものである。

【0027】また、係止具は、図7に示すような構成のものでも良い。図7(a)に示すように留置チューブ31の手元側は、内視鏡操作部13の外周に設けられた半円状突起35aに着脱自在に取り付け可能な係止具36を設けている。また、前記処置具挿入口25に挿入されている保持具33の手元側も前記半円状突起35aに着脱自在に取り付け可能な係止具36を設けている。図7(b)に示すように前記係止具36は、シリコン等の弾性ゴムや弾性エラストマで形成されている。前記係止具36は、前記処置具又は留置チューブ31や前記保持具33に取り付ける取付部36aと、前記半円状突起35aに着脱自在に嵌合する嵌合部35bを有して構成されている。これにより、前記処置具又は前記留置チューブ31だけでなく、前記保持具33の手元側もふらふらすることなく、操作し易くなる。

【0028】本実施の形態では、上述したように内視鏡挿入部11の外周軸方向に沿わせた留置チューブ31の先端部を保持するための凹部を、前記内視鏡挿入部11の先端部21外周に形成するように内視鏡2を構成する。

【0029】図3に示すように前記内視鏡2は、この内視鏡挿入部11の先端部21外周に前記処置具挿通チャンネル26の先端開口部26aから基端側に向かって、留置チューブ31の先端部を保持固定するための凹部として溝部41を形成されている。そして、前記処置具挿通チャンネル26の先端開口部26aは、前記溝部41の基端側壁面41aに開口するようになっている。尚、前記溝部41は、前記留置チューブ31の先端部が前記内視鏡挿入部11の先端部21外周に固定保持可能な面取り部42を前記内視鏡挿入部11の先端部端面21aに形成している。

【0030】図4(a)に示すように前記保持具33

は、前記溝部41内から前記処置具挿通チャンネル26の先端開口部26aへ突没自在となっている。このことにより、図4(b)に示すように前記溝部41内へ突出させた保持具33の環状部33aにより、前記留置チューブ31の先端部を引っかけて保持し更に、この状態から図4(c)に示すように前記保持具33を前記処置具挿通チャンネル26内に引き込ませることで、前記溝部41に前記留置チューブ31の先端部を保持固定することができる。尚、このとき、内視鏡挿入部11の先端部端面21aと前記留置チューブ31の先端部端面31aとの位置関係は、同面か又は前記留置チューブ31の先端部端面31aの方が内視鏡挿入部11の先端部端面21aより凹むようになっている。

【0031】このように構成された本実施の形態の作用を図4を参照し図5を用いて説明する。術者は、図2で説明したように係止具32で留置チューブ31を係止してこの留置チューブ31を挿入部11の外周に沿わせると共に、処置具挿入口20から保持具33を処置具挿通チャンネル26に挿入させる。

【0032】そして、術者は、図4で説明したように処置具挿通チャンネル26の開口から保持具33を溝部41内へ突出させ、この突出させた保持具33の環状部33aにより、留置チューブ31の先端部を引っかけて保持し、処置具挿通チャンネル26内に引き込ませると、留置チューブ31の先端部は、溝部41で保持固定することが可能となる。このことにより、留置チューブ31の先端部を内視鏡挿入部11の先端部21に保持することが可能となる。

【0033】術者は、この状態で、図5(a)に示すように内視鏡挿入部11を留置チューブ31と共に、経口的に体腔内に挿入し、目的部位まで挿入する。術者は、内視鏡挿入部11を留置チューブ31と共に目的部位まで挿入したら、図5(b)に示すように留置チューブ31の先端部の保持を上述したのと逆の方法で緩め、挿入部11の先端部21から留置チューブ31を外し、目的部位に留置チューブ31を留置する。そして、図5(c)に示すように内視鏡挿入部11を体腔内から抜去する。次に、図示しないが図17及び図18で説明したように口から出ている留置チューブ31を図示しないガイドワイヤや補助具を使って鼻側に移し、留置が完了する。

【0034】この結果、本実施の形態の内視鏡1は、以下に記載する効果を得る。

・細径の挿入部11を有する内視鏡で、処置具挿通チャンネル26の内径が細径であっても留置チューブ31の留置が可能である。これによって、患者の苦痛が軽減させる。よって、セデーションも不要になり、術後でもICUにてすぐに留置チューブ31を留置できる。それによって、患者の健康状態が早く良好になり、ICU滞在期間も短くなる。



・盲目的な留置チューブ31の留置の必要がなくなるので術者の特別な習熟も必要なくなる。これによって、簡単に安全に留置ができる。X線による透視も不要になり、不必要な被爆がなくなるので、患者にとってもよい。

・直接、処置具挿通用チャンネル26に留置チューブ31を挿入したり、ガイドワイヤを介して留置チューブ31を留置しないので、留置チューブ31の長さが短くて済む。

・留置チューブ31が係止具で係止されているので手元側で留置チューブ31がぶらぶらせず、操作し易い。

【0035】尚、前記保持具33の代わりに図8に示すように軟性のガイド糸を用いる構成としても良い。図8に示すように前記保持具33の代わりにナイロンテグス等の軟性のガイド糸51を前記処置具挿入口25から挿入し、前記処置具挿通用チャンネル26を経由して前記溝部41から延出させ、前記留置チューブ31の先端から内腔を経由してこの留置チューブ31の手元側に導く。そして、手元側の処置具挿入口25付近でクリップ装置52により、ガイド糸51の両端を係止（クランプ）する。

【0036】この状態で体腔内に内視鏡挿入部11と共に、留置チューブ31を挿入する。そして、クリップ装置52を外して、ガイド糸51を引き抜き、留置チューブ31を留置する。内視鏡挿入部11を体腔内から抜去して留置が完了する。これにより、保持具33が不要である。

【0037】尚、本実施の形態では、図示しない撮像手段を内視鏡挿入部11の先端部21に内蔵した電子内視鏡に本発明を適用しているが、本発明はこれに限定されず、照明された被写体像を先端部に内蔵した対物光学系で取り込み、この取り込んだ被写体像をリレーレンズ等の導光手段により接眼部に伝達する光学式内視鏡に本発明を適用しても構わない。また、本実施の形態では、照明光を供給する光源装置をビデオプロセッサ3に具備したものに本発明を適用しているが、本発明はこれに限定されず、内視鏡に着脱自在なバッテリー光源装置を取り付ける構成のバッテリー式内視鏡に本発明を適用しても構わない。

【0038】（第2の実施の形態）図9ないし図11は本発明の第2の実施の形態に係り、図9は本発明の第2の実施の形態を備えた内視鏡の挿入部先端側を示す説明図、図10は図9の変形例を示す説明図であり、図10（a）は内視鏡の挿入部先端側を示す説明図、図10（b）は同図（a）のC矢視図、図11は図9の他の変形例を示す説明図であり、図11（a）は内視鏡の挿入部先端側を示す説明図、図11（b）は同図（a）のE矢視図である。

【0039】上記第1の実施の形態では、内視鏡挿入部11の先端部21外周に留置チューブ31を保持可能な

凹部として溝部を形成して構成しているが、本第2の実施の形態では、留置チューブ31の代わりに生体組織を処置するための先端部が大きな処置具を内視鏡挿入部11の先端部21外周に保持可能な凹部を形成するように構成する。それ以外の構成は、上記第1の実施の形態と同様なので、説明を省略し、同じ構成には同じ符号を付して説明する。

【0040】図9に示すように本第2の実施の形態の内視鏡は、この内視鏡挿入部11の先端部21外周に凹部として、処置具挿通用チャンネル26のチャンネル内径Aと同じがそれよりやや広い幅で、且つ挿入部11の長手軸方向にチャンネル内径Aより長い長さBの溝部61を形成している。更に、この溝部61の位置は、挿入部湾曲部22の上下（UD）湾曲方向に対して略直角（略左右（LR）湾曲方向）をなす向きに形成している。

尚、前記溝部61は、上記第1の実施の形態と同様に、留置チューブ31も保持可能である。これにより、内視鏡の適用を上部消化管だけでなく、下部消化管等、体腔内に挿入する内視鏡検査に使用可能としている。

【0041】このように構成された内視鏡は、上記第1の実施の形態と同様に処置具を保持固定することができる。尚、保持具33の環状部33aの保持を暖めることによって、処置具の進退や回転が可能である。

【0042】この結果、本第2の実施の形態の内視鏡は、上記第1の実施の形態に比べ、溝部61に処置具をより保持固定し易くなり、処置具挿通用チャンネル26よりも大口径の処置具を使用できる。また、留置チューブ31越してないので外径が不要に大きくなならない。更に、溝部41の位置を湾曲部22の上下（UD）湾曲方向と略直角（略左右（LR）湾曲方向）をなす向きに形成したので、上下方向より左右方向の方が広い咽頭通過が容易である。

【0043】また、内視鏡は、図10に示すように構成しても良い。図10（a）、（b）に示すように内視鏡は、この内視鏡挿入部11の先端部21外周に形成した前記溝部41又は前記溝部61の後方に処置具挿通用チャンネル26の内径より大径で且つ前記溝部41又は前記溝部61の幅より広い円弧状溝部62を形成している。

【0044】これにより、上記第1、第2の実施の形態に比べて、内視鏡挿入部11の先端部21外周に前記処置具又は留置チューブ31を保持固定することがより確実となる。また、内視鏡挿入部11の先端部端面21aから前記処置具又は前記留置チューブ31（図中では留置チューブ31）の端面31aが突出しないので挿入時安全でしかも先細になるので挿入し易くなる。

【0045】また、内視鏡は、図11に示すように構成しても良い。図11に示すように内視鏡は、前記処置具挿通用チャンネル26の内径より大径で且つ幅広な略半円状溝部63を内視鏡挿入部11の先端部先端面21a

から挿入部11の長手軸方向に処置具挿通用チャンネル26の内径より長く形成すると共に、この略半円状溝部63の後方に更に幅の広い段部64を前記略半円状溝部63に向かって内視鏡挿入部11の先端部21の内径方向に対して末広がりとなるように形成している。

【0046】これにより、上記第1の実施の形態に比べて、内視鏡挿入部11の先端部21外周に前記処置具又は前記留置チューブ31を保持固定することがより確実となる。また、保持具33が先端に位置するようになるので内視鏡挿入部11の先端部21を挿入し易くなる。

【0047】(第3の実施の形態)図12は本発明の第3の実施の形態に係る内視鏡の挿入部先端側を示す説明図である。上記第1、第2の実施の形態では、内視鏡挿入部11の先端部21外周に処置具又は留置チューブ31を保持可能な凹部(溝部)を形成して構成しているが、本第3の実施の形態では凹部として処置具挿通用チャンネル26に連通する連通路を形成するように構成する。それ以外の構成は、上記第1、第2の実施の形態と同様なので、説明を省略し、同じ構成には同じ符号を付して説明する。

【0048】図12に示すように本第3の実施の形態の内視鏡は、この内視鏡挿入部11の先端部21外周に凹部として、処置具挿通用チャンネル26に連通する連通路65を形成している。この連通路65は、処置具挿通用チャンネル26の内径と同等の内径で且つ、挿入部11の長手軸方向に対して略90°以下の角度で形成されている。

【0049】これにより、保持具33を使用すること無く、内視鏡挿入部11の外周に沿わせた留置チューブ31を内視鏡挿入部11の先端部21に保持することが可能となる。尚、前記留置チューブ31を前記連通路65に挿入して内視鏡挿入部11の先端部21に保持した後、この状態で体腔内へ挿入し、目的部位の付近で留置を行う際には、前記処置具挿入口20から前記留置チューブ31の基端側を引っ張ることで、前記連通路65から前記留置チューブ31を引き抜いて、留置チューブ31の留置を行うことができるようになる。

【0050】この結果、本第3の実施の形態の内視鏡は、保持具33が不要であるので、上記第1、第2の実施の形態と比べて、操作が容易となる。

【0051】(第4の実施の形態)図13及び図14は本発明の第4の実施の形態に係り、図13は本発明の第4の実施の形態を備えた内視鏡の挿入部先端側を示す説明図、図14は図13の変形例を示す説明図であり、図14(a)は内視鏡の挿入部先端側を示す説明図、図14(b)は同図(a)のG矢視図である。

【0052】上記第1～第3の実施の形態では、内視鏡挿入部11の先端部21外周に凹部を形成し、処置具挿通用チャンネル26を用いて処置具又は留置チューブ31を内視鏡挿入部11の先端部21に保持可能な構成と

しているが、本第4の実施の形態では処置具挿通用チャンネル26を用いること無く、内視鏡挿入部11の先端部21に処置具又は留置チューブ31を保持可能な構成とする。それ以外の構成は、上記第1～第3の実施の形態と同様なので、説明を省略し、同じ構成には同じ符号を付して説明する。

【0053】図13(a)、(b)に示すように本第4の実施の形態の内視鏡は、処置具又は留置チューブ31の外径と同じか若干細径の穴部66aを形成した突起部66を前記内視鏡挿入部11の先端部21に対して先端に設けて構成されている。尚、前記穴部66aは貫通孔でも良い。

【0054】これにより、保持具33を使用すること無く、内視鏡挿入部11の外周に沿わせた留置チューブ31を内視鏡挿入部11の先端部21に保持することが可能となる。尚、前記留置チューブ31を前記突起部66の穴部66aに挿入して内視鏡挿入部11の先端部21に保持した後、この状態で体腔内へ挿入し、目的部位の付近で留置を行う際には、処置具挿入口20から前記留置チューブ31の基端側を引っ張ることで、前記突起部66の穴部66aから前記留置チューブ31を引き抜いて、留置チューブ31の留置を行うことができるようになる。

【0055】また、図14に示すように前記突起部66の代わりに、内視鏡挿入部11の先端部21に腕状保持部を設けて構成しても良い。図14に示すように内視鏡は、この内視鏡挿入部11の先端部21外周に弾性エラストマで形成される腕状保持部67を設けており、この腕状保持部67と内視鏡挿入部11の先端部21との間にガイドワイヤ68を挿入保持することができるようになる。

【0056】腕状保持部67にガイドワイヤ68を挟み込んで保持し、このガイドワイヤ68をガイドに留置チューブ31を内視鏡挿入部11に沿わせて保持し体腔内の目的部位の付近で挿入する。そして、ガイドワイヤ68を引き抜くことによって留置チューブ31をフリーにし、留置を行う。その後、挿入部11を体腔内から抜去して留置チューブ31の留置が完了する。

【0057】これにより、保持具33を使用すること無く、内視鏡挿入部11の先端部21外周に沿わせた処置具又は留置チューブ31の先端部をガイドワイヤ68を介して内視鏡挿入部11の先端部21に保持することが可能となる。尚、図示しないが前記腕状保持部67に直接処置具又は留置チューブ31を挟み込むように構成しても良い。

【0058】この結果、本第4の実施の形態の内視鏡は、上記第3の実施の形態の効果に加えて、処置具挿通用チャンネル26を自由に使用可能である。

【0059】(第5の実施の形態)図15は本発明の第5の実施の形態に係る内視鏡の挿入部先端側を示す説明

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図である。上記第4の実施の形態では、内視鏡挿入部11の先端部21外周に突起部や腕状保持部を設けて、処置具挿通用チャンネル26を用いることなく処置具又は留置チューブ31を内視鏡挿入部11の先端部21に保持可能な構成としているが、本第5の実施の形態では、内視鏡挿入部11の先端部21を覆うキャップを着脱自在に取り付け、このキャップにより処置具又は留置チューブ31を保持可能な構成とする。それ以外の構成は、上記第4の実施の形態と同様なので、説明を省略し、同じ構成には同じ符号を付して説明する。

【0060】図15に示すように本第5の実施の形態の内視鏡は、この内視鏡挿入部11の先端部21に着脱自在に取り付け可能な透明キャップ69を設ける。この透明キャップ69は、前記処置具又は留置チューブ31の外径と同じか若干細径の側孔69aを形成している。

【0061】内視鏡挿入部11の先端部21に透明キャップ69を取り付け、この透明キャップ69の側孔69aにガイドワイヤ68を通し、処置具挿通用チャンネル26に挿通した保持具33（保持鉗子70）で保持すると共に、ガイドワイヤ68をガイドに留置チューブ31を挿入部11に沿わせた状態で保持し体腔内の目的部位の付近で挿入する。そして、保持具33（保持鉗子70）の保持を解除してガイドワイヤ68を外し、このガイドワイヤ68を引き抜くことによって留置チューブ31をフリーにし、留置を行う。その後、挿入部11を体腔内から抜去して留置チューブ31の留置が完了する。尚、図示しないが、ガイドワイヤ68を介することなく、保持鉗子70で直接留置チューブ31を保持するようにしても良い。

【0062】この結果、本第5の実施の形態の内視鏡は、上記第1～第4の実施の形態と比べて、着脱自在の透明キャップ69のみ取り付けただけなので、内視鏡挿入部11の先端部21を加工した特別の内視鏡を用いる必要がない。

【0063】ところで、上記第1～第5の実施の形態で使用される留置チューブ31は、図16に示すように構成しても良い。図16は留置チューブを示す説明図である。

【0064】図16(a)に示すように留置チューブ71は先端71aを袋小路とし、側孔71bを形成すると共に、保持具33の環状部33aで保持される係止溝71cを形成して構成されている。また、図16(b)に示すように留置チューブ72は側孔72bを形成すると共に、先端に球部72aを設け、くびれ部72cを有して構成されている。また、図16(c)に示すように留置チューブ73は先端に梨地部73dを設けて構成されている。尚、前記留置チューブ71、72は、係止溝71b、72bを斜め方向に形成して構成したものでも良い。これら留置チューブ71～73により、保持具33の環状部33aによる留置チューブ31の保持がより

確実となる。

【0065】尚、本発明は、上記した実施の形態にのみ限定されるものではなく、本発明の要旨を逸脱しない範囲で種々変形実施可能である。

【0066】〔付記〕

（付記項1） 処置具又は留置チューブを内視鏡挿入部の外周軸方向に沿わせ、前記処置具又は留置チューブの先端部を前記内視鏡挿入部の先端部に保持するための凹部を、前記内視鏡挿入部の先端部側に形成したことを特徴とする内視鏡。

（付記項2） 内視鏡挿入部内に配設され、この内視鏡挿入部の先端部に開口する処置具挿通用チャンネルを有し、処置具又は留置チューブを内視鏡挿入部の外周軸方向に沿わせ、前記処置具又は留置チューブの先端部を前記内視鏡挿入部の先端部に保持するための凹部を、前記処置具挿通用チャンネルの先端開口から基端側に向かって前記内視鏡挿入部の先端部外周に形成したことを特徴とする内視鏡。

（付記項3） 前記内視鏡挿入部の外周軸方向に沿わせて前記処置具又は前記留置チューブの先端部を前記凹部に配置し、前記保持具を前記処置具挿通用チャンネルに挿入してこの処置具挿通用チャンネルの先端開口から前記凹部内へ突出させ、この凹部内へ突出させた保持具で前記処置具又は前記留置チューブの先端部を保持し、これら処置具又は留置チューブの先端部を保持した状態で前記保持具を前記処置具挿通用チャンネル内に引き込ませて、前記処置具又は前記留置チューブの先端部を前記凹部に保持固定させることを特徴とする付記項2に記載の処置具又は留置チューブの保持固定方法。

（付記項4） 内視鏡の挿入部内に配設され、この挿入部の先端部に開口する処置具挿通用チャンネルと、体腔内へ留置する留置チューブ又は体内組織を処置するための処置具を前記内視鏡の挿入部の外形部に沿わせ、前記留置チューブ又は処置具の先端部を前記内視鏡挿入部の先端部に保持するために前記処置具挿通用チャンネルの先端部の開口から基端側に向かって前記処置具挿通用チャンネルを前記挿入部の外形部に開口する溝と、前記処置具挿通用チャンネルを介して前記溝から突出させ、前記留置チューブ又は処置具の外径部周囲を保持する保持具と、この保持具を前記処置具挿通用チャンネル内に引き込んで前記留置チューブ又は処置具の少なくとも先端部近傍を前記溝内に収納する操作手段と、を具備することを特徴とする内視鏡装置。

（付記項5） 前記内視鏡挿入部の先端側から後方側に向かって、前記内視鏡挿入部の長手軸方向に前記凹部を形成したことを特徴とする付記項1に記載の内視鏡。

（付記項6） 処置具挿通用チャンネルを挿通配設した内視鏡挿入部を有し、前記凹部は、前記処

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置具挿通用チャンネルの先端開口から基端側に向かって、前記内視鏡挿入部の先端部外周に開口する溝部であることを特徴とする付記項1に記載の内視鏡。

【0072】(付記項7) 前記処置具又は前記留置チューブの基端側を前記内視鏡挿入部に沿わせるための係止手段を内視鏡操作部に設けたことを特徴とする付記項1に記載の内視鏡。

【0073】(付記項8) 前記処置具又は前記留置チューブの基端側を前記内視鏡挿入部に沿わせるための係止手段を前記処置具又は前記留置チューブの基端側に設けたことを特徴とする付記項1に記載の内視鏡。

【0074】(付記項9) 前記保持具はスネアであり、このスネアの先端部に設けられた環状部によって前記留置チューブの先端部を保持することを特徴とする付記項2に記載の内視鏡。

【0075】(付記項10) 処置具挿通用チャンネルを挿通配設した内視鏡挿入部を有し、前記保持具が前記処置具又は前記留置チューブの先端部を保持した状態で、前記処置具挿通用チャンネルの基端側開口部から突出した前記保持具の基端側を内視鏡操作部に係止するための係止手段を前記保持具の基端側に設けたことを特徴とする付記項2に記載の内視鏡。

【0076】(付記項11) 前記留置チューブは、軟質材料で形成されていることを特徴とする付記項2に記載の内視鏡。

【0077】(付記項12) 前記留置チューブは、シリコンまたはPTFE (polytetrafluoroethylene) 軟質材料で形成されていることを特徴とする付記項2に記載の内視鏡。

【0078】(付記項13) 前記留置チューブは、処置具が挿通可能であることを特徴とする付記項2に記載の内視鏡。

【0079】(付記項14) 前記保持部の先端部を係止する係止部を前記留置チューブの先端側に設けたことを特徴とする付記項2に記載の内視鏡。

【0080】(付記項15) 前記溝部を内視鏡湾曲部の上下湾曲方向と略直角をなす向きに形成したことを特徴とする付記項6に記載の内視鏡。

【0081】(付記項16) 前記溝部を前記処置具又は前記留置チューブの直径と同等か又は大きい幅に形成したことを特徴とする付記項6に記載の内視鏡。

【0082】(付記項17) 前記溝部の基端側開口部を前記内視鏡挿入部の先端側方向へ傾斜するように形成したことを特徴とする付記項6に記載の内視鏡。

【0083】

【発明の効果】以上説明したように本発明によれば、簡

便に先端が大きな処置具又は留置チューブを内視鏡挿入部の先端部に着脱自在に保持することが可能である。

【図面の簡単な説明】

【図1】本発明の第1の実施の形態を備えた内視鏡装置の概略構成図

【図2】図1の内視鏡操作部に係止具を取り付けた際の説明図

【図3】図1の内視鏡挿入部の先端部を示す説明図

【図4】図3の内視鏡挿入部の先端部に留置チューブを保持している際の説明図

【図5】本発明の第1の実施の形態の作用を説明する説明図

【図6】図2の係止具の変形例を示す説明図

【図7】図2の係止具の他の変形例を示す説明図

【図8】図2の保持具の代わりにガイド糸を用いる際の内視鏡操作部の処置具挿入口近傍を示す説明図

【図9】本発明の第2の実施の形態を備えた内視鏡の挿入部先端側を示す説明図

【図10】図9の変形例を示す説明図

【図11】図9の他の変形例を示す説明図

【図12】本発明の第3の実施の形態に係る内視鏡の挿入部先端側を示す説明図

【図13】本発明の第4の実施の形態を備えた内視鏡の挿入部先端側を示す説明図

【図14】図13の変形例を示す説明図

【図15】本発明の第5の実施の形態に係る内視鏡の挿入部先端側を示す説明図

【図16】留置チューブを説明する説明図

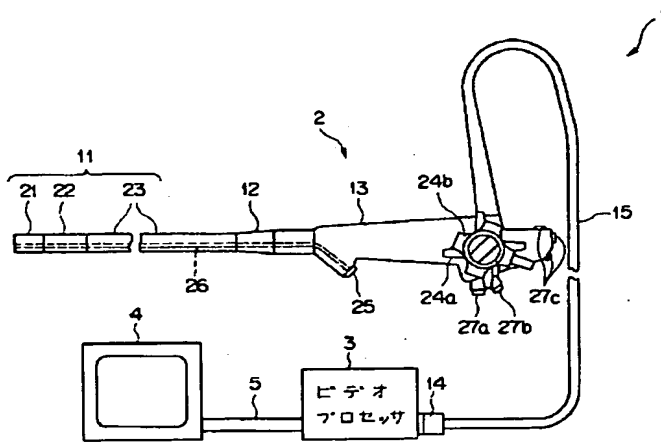
【図17】従来の留置チューブを体腔内に留置する場合の説明図

【図18】図17とは異なる従来の留置チューブを体腔内に留置する場合の説明図

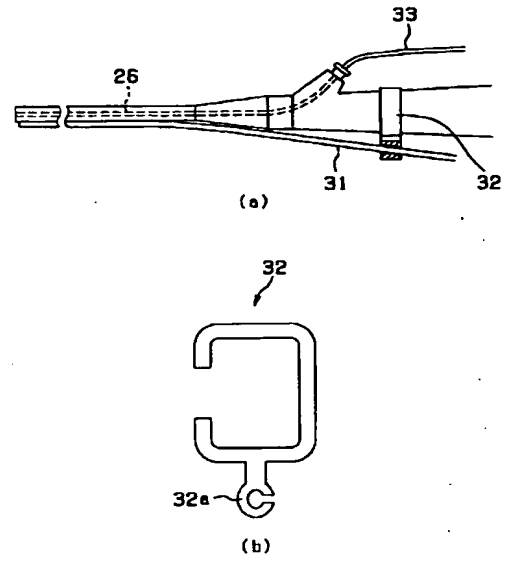
【符号の説明】

1	…内視鏡装置
2	…内視鏡
11	…挿入部(内視鏡挿入部)
12	…操作部
21	…先端部
25	…処置具挿入口
26	…処置具挿通用チャンネル
26a	…処置具挿通用チャンネルの先端開口部
31	…留置チューブ
32	…係止具
33	…保持具
41	…溝部(凹部)

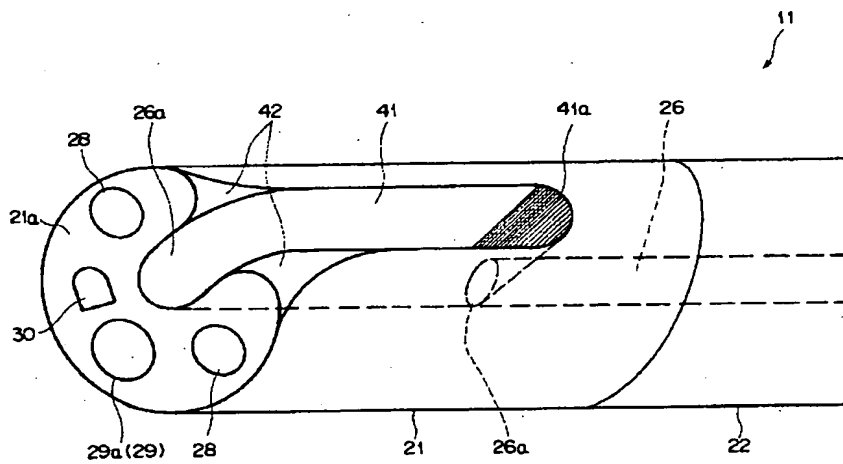
【図1】



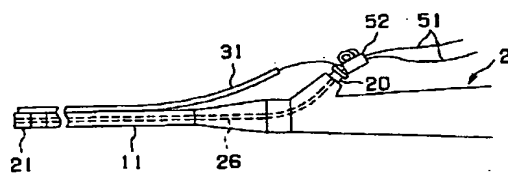
【図2】



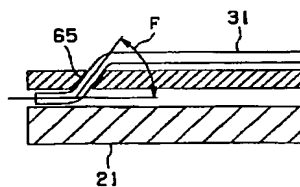
【図3】



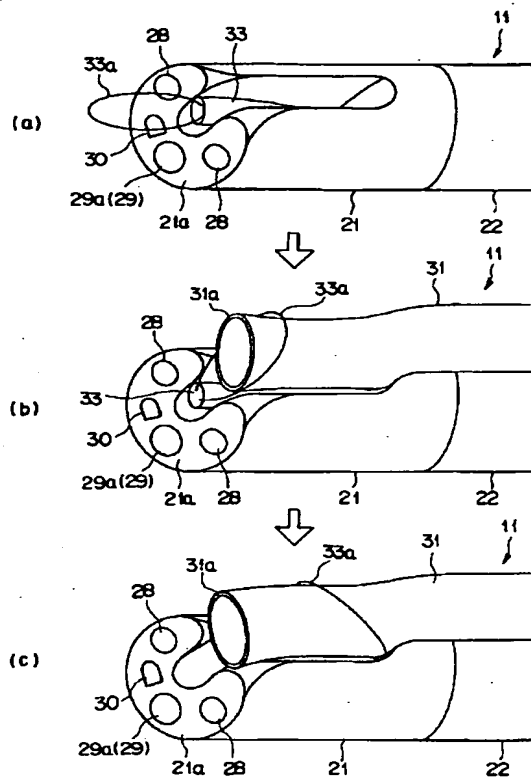
【図8】



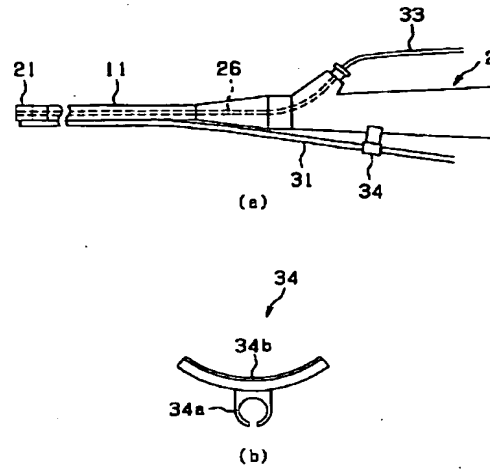
【図12】



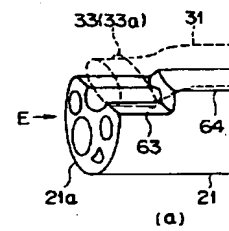
【図4】



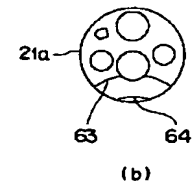
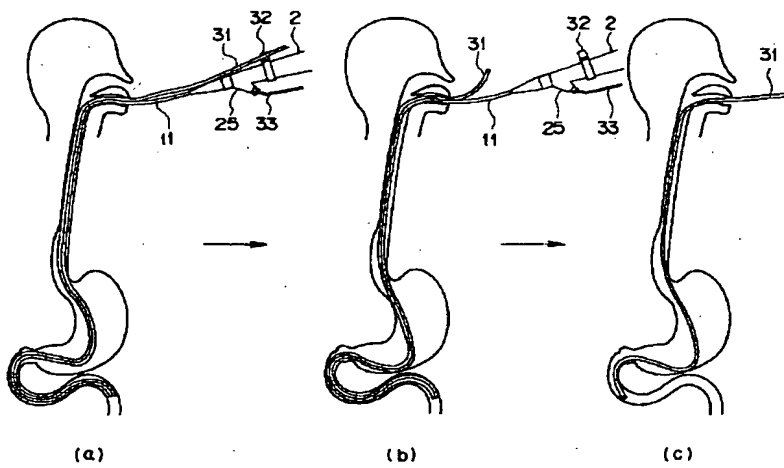
【図6】



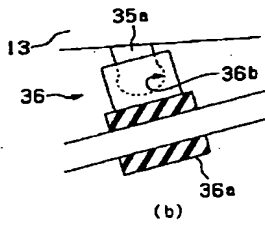
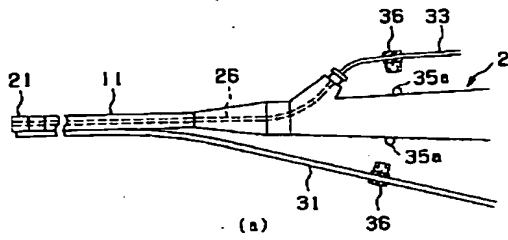
【図11】



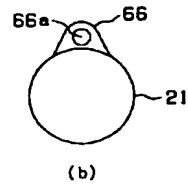
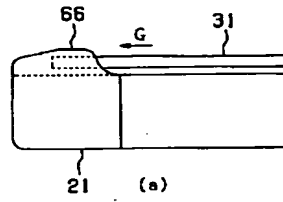
【図5】



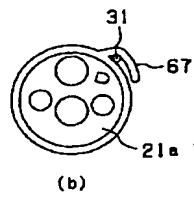
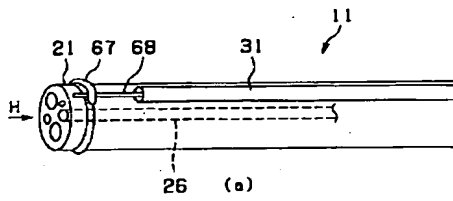
【図7】



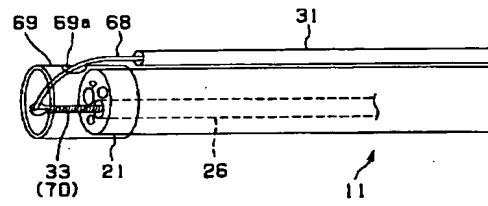
【図13】



【図14】

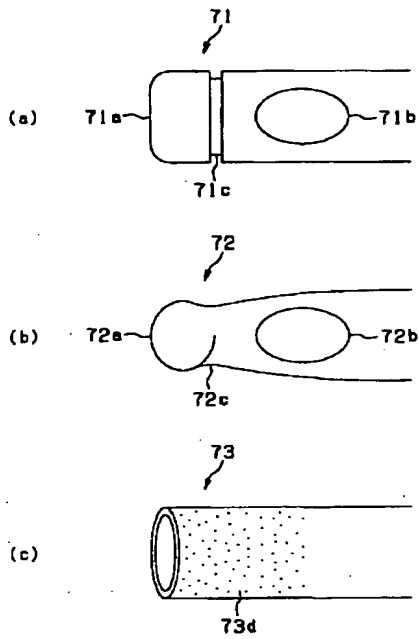


【図15】

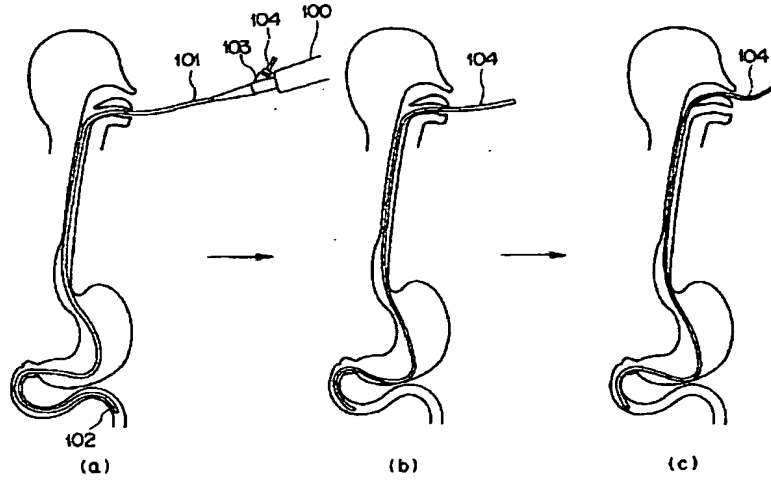




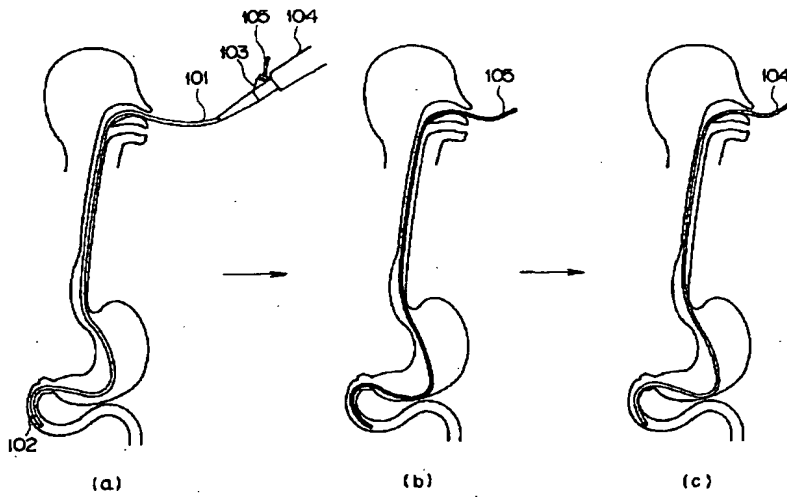
【図16】



【図17】



【図18】



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